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TECHNICAL MEMORANDUM ZONE J SHIPYARD CREEK SCREENING LEVEL  
ECOLOGICAL RISK ASSESSMENT PROGRESS REPORT CNC CHARLESTON SC  
8/1/2003  
ENSAFE INC.

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**COMPREHENSIVE LONG-TERM  
ENVIRONMENTAL ACTION NAVY  
CHARLESTON NAVAL COMPLEX  
NORTH CHARLESTON, SOUTH CAROLINA  
CTO-0164**

**ZONE J SHIPYARD CREEK SCREENING LEVEL  
ECOLOGICAL RISK ASSESSMENT  
TECHNICAL MEMORANDUM  
PROGRESS REPORT**

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**DEPARTMENT OF THE NAVY  
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NORTH CHARLESTON, SOUTH CAROLINA**

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**Release of this document requires the prior notification of the Commanding Officer  
of the Southern Division, Naval Facilities Engineering Command, Naval Base  
Charleston, South Carolina.**

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## **1.0 INTRODUCTION**

### **Background**

The screening level ecological risk assessment (SLERA) for Shipyard Creek is one part of the Zone J investigation of three water bodies that surround the Charleston Naval Complex (CNC).<sup>1</sup> Each Zone J water body, although part of one dynamic watershed, differs in size, flow, and level of near-shore industrialization. Therefore, it was necessary to segregate the data collected from each water body and assess Shipyard Creek, the Cooper River, and Noisette Creek separately.

For detailed descriptions of each Zone J water body, surrounding land uses, and known locations of near-shore AOC/SWMUs, see Section 1 of the *Zone J Storm Water Effluent Evaluation Report* (EnSafe October 2003), which details storm water discharge points to Shipyard Creek and the other water bodies. It also summarizes findings of previous independent studies conducted in the Charleston Harbor and surrounding tidal creeks, including information on the system's hydrography, physical dynamics, biological communities, contaminants, and toxicity.

### **Purpose of SLERA and Progress Report**

This SLERA evaluates all potential exposure pathways and contaminant migration pathways in Shipyard Creek. It will document the constituents present in the creek's environmental media at concentrations that may pose unacceptable ecological risk. This evaluation will include screening constituents in the following migration pathways: (1) effluent via the storm water drainage system, (2) surface water overland flow, and (3) groundwater discharge into Shipyard Creek. These migration pathways will be evaluated by screening the constituents in storm water drainage system effluent water samples, surface soil samples at SWMUs and AOCs<sup>2</sup> adjacent to (and draining directly into) Shipyard Creek, and groundwater from wells closest to Shipyard Creek. These contaminant migration pathways will be used not only to evaluate the potential for unacceptable risk, but also to identify potential upgradient sources for any unacceptable exposure within Shipyard Creek habitats.

This progress report documents Steps 1 and 2 of EPA's 8-step ecological risk assessment<sup>3</sup> as well as its contaminant of potential concern (COPC) refinement. Its purpose is to provide risk managers with data they need to determine the final list of COPCs and evaluate whether any additional site-specific investigations or remedial alternatives are needed to deal with ecological risk in Shipyard Creek. The Navy will provide screening constituents for the surface water overland flow and groundwater discharge migration pathways; as soon as data are incorporated, this report will need to be revised.

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<sup>1</sup> Zone J consists of the Cooper River, Shipyard Creek, and Noisette Creek, which adjoin CNC properties.

<sup>2</sup> Solid waste management units and areas of concern

<sup>3</sup> Screening level problem formulation and exposure estimate and risk calculation

## **2.0 STEP 1 – SCREENING LEVEL PROBLEM FORMULATION**

### **2.1 Zone J and Shipyard Creek Description**

The Charleston Naval Complex (CNC) flanks the western shore of the Cooper River, approximately 6.75 miles upriver from Fort Sumter (Figure 2-1). CNC's 3.75-mile waterfront is dominated by 25 piers and five dry docks; most of its length is protected by a wooden or concrete seawall. Large ships are repaired and maintained all along the industrial areas of CNC. Industrial areas also border Shipyard Creek, with offsite point-source discharges (i.e., National Pollution Discharge Elimination System [NPDES] outfalls) present in this tributary.

Shipyard Creek, a 61-acre drainage creek to the lower Cooper River, is partially inside CNC's southwestern property boundary and receives westerly runoff from the central and southern portions of the base, specifically RFI Zones G, H, and I and easterly runoff from several industrial sources along its eastern border. The estuarine intertidal and subtidal marsh habitat that lines the shore of this half-mile creek equals the size of the open water habitat and has areas of unconsolidated shore and bottom. Marsh vegetation typical of the area consists primarily of cord grass (*Spartina* spp.). The mudflats and scrub-shrub vegetation of the wetland and intertidal zone provide foraging habitat for numerous ecological receptors.

Along the eastern side of the creek are several points of tidal conveyance to and from onshore wetlands and drainage ways at CNC. Fewer such areas were present on the opposite shore which is mainly industrial. The wetlands along the southern shores were also less widespread due to the construction of the shipyard and several industrial piers.

In addition to the cord grass wetland within the creek, riparian vegetation lines both shores; species include southern hackberry, mulberry, wax myrtle, and tallow trees. Numerous wading birds, such as green-backed heron, snowy egret, and great blue heron were observed in or near the creek during site visits. Seagulls, brown pelicans, kingfisher, red-tailed hawks, and osprey also forage in the open waters and nest in surrounding treetops. Boat-tailed grackle and red-wing blackbirds forage throughout the wetland vegetation. Small fish and turtles live in the open water and fiddler crabs abound in the wetland mudflats during low tide. Mammals such

as muskrats, river otter, marsh rabbit, raccoon, and opossum also forage amidst the riparian areas.

## **2.2 Shipyard Creek Hydrodynamics**

Shipyard Creek is a two-mile-long tidal tributary of the lower Cooper River. It borders the southwestern property boundary of the CNC. The lower one-mile segment consists of dredged navigation channels and two turning basins. Estuarine intertidal and subtidal marsh habitat line the eastern shore of the creek and the area around its upstream portion.

Several large industrial facilities and recreational docks line the Shipyard Creek basin. The Cooper River Marina anchors the southern tip of the CNC where Shipyard Creek and the Cooper River converge. Major industrial facilities such as Macalloy and Foster Wheeler dominate the western shore of Shipyard Creek. Chevron Products, Kinder Morgan Bulk Terminal, and Salmon Dredging Corporation help complete the industrial landscape.

### **2.2.1 Bathymetry**

At mean low water (mlw), the water in the approach channel, the entrance channel, and the outer turning basin of Shipyard Creek is about 50 ft deep. The interior channel and the second turning basin are about 44 ft deep at MLW. The total dredged area in Shipyard Creek, as measured from the creek entrance, is about 46 acres; the total open water in Shipyard Creek almost doubles that at approximately 91 acres. Shipyard Creek's tidal marsh area covers roughly 105 acres. The mouth of the creek is about 600 ft wide, with an average depth of 41.7 ft at MLW. In the Cooper River near Shipyard Creek, the Daniel Island Reach is about 43 ft deep at mlw.

### **2.2.2 Tides and Currents**

According to National Oceanic and Atmospheric Administration's (NOAA) tide table, the average tide range in Shipyard Creek is about 5.3 ft, and the spring tide range is 6.1 ft. No published tidal current information is available for Shipyard Creek. The computed average peak current speed at the Shipyard Creek entrance channel is about 0.05 feet per second (fps), based on an estimated tidal prism of 692 acre-ft and a cross-sectional area of 26,600 square feet at mean

sea level (msl). It is evident that Shipyard Creek is a low tidal energy environment because of the small tidal prism compared with its large cross-sectional area.

In contrast to the low current velocity in the Shipyard Creek, the tidal currents in the Cooper River are much stronger. According to NOAA's tidal current table, the average peak ebb current in the Cooper River near the Shipyard Creek entrance is approximately 2.5 fps; the average peak flood current is 0.8 fps. The average peak ebb current in the Daniel Island Reach of the Cooper River is about 3.8 fps and the average peak flood current is 2.2 fps.

### **2.2.3 Drainage**

The Shipyard Creek basin drains approximately 1,157 acres, including the open water and tidal marsh areas. The tidal marsh area covers approximately 105 acres and the open water in the creek at low tide covers about 91 acres, resulting in approximately 961 acres in the total upland drainage area of the Shipyard Creek basin. About 279 acres of the drainage area (about 29 percent of the total upland drainage area) is within the CNC property. The remainder lies in the urban area west of the CNC property. The drainage basin delineation is based on the CNC drainage evaluation (Davis and Floyd, 1998) and U.S. Geological Survey (USGS) quadrangles.

Only five storm water outfalls in the Shipyard Creek basin are within the CNC boundary. Most of the surface drainage to the Shipyard Creek from the CNC is in the form of overland sheet flow. Storm water outfalls are listed in Table 2-1.

**Table 2-1**  
**Shipyard Creek Storm Water Outfalls Inventory**

<b>Outfall ID</b>	<b>Contributing Drainage Basin</b>		<b>Sample ID</b>
	<b>Diameter (inches)</b>	<b>Area (acres)</b>	
51H	6x4 box	7.822	EFF063
52	ditch	45.92	EFF064 to EFF068
52A	ditch	33.417	EFF069
54	36	5.829	none
54A	15	23.815	none
55	NA	81.08	none
56	NA	38.65	none

A major factor in determining the diluting and flushing capacity of a tidal creek is the quantity (volume and rate) of storm water runoff that enters the creek versus the magnitude of the creek's tidal water exchange. Storm water runoff was estimated for comparison with creek tidal flows. Runoff volume and peak flow rates were estimated for annual average, storm-event average, and larger, more infrequent storm events.

Estimating the runoff required evaluating the area's topography and drainage infrastructure to determine drainage basins, rainfall statistics, and land cover, including impervious surface. These evaluations were carried out for the Shipyard Creek basin. Details and results are presented in the following sections.

#### **2.2.3.1 Land Cover**

Using the available GIS coverage for the CNC, the area of impervious cover and open space was computed. Land cover outside the CNC was determined using aerial photographs and USGS quadrangles. The following details land cover in the Shipyard Creek drainage basin.

Industrial	460 acres
Open space	283 acres
Marsh and Wetland	183 acres
High-Density Residential	123 acres
Open water	91 acres

Impervious	14 acres
Gravel Lot	6 acres

### **2.2.3.2 Tidal Flushing and Dilution Analysis**

The estimated volume of the Cooper River water flowing into and out of Shipyard Creek due to tidal action was used to evaluate the flushing capabilities of Shipyard Creek and to evaluate the ambient dilution of storm water discharges. The tidal flow volume, also known as the "tidal prism," is the volume of water in the creek between high and low tides. Based on an average tide range of 5.3 ft and the open water and marsh areas presented in the previous section, the estimated tidal prism is 692 acre-ft. This calculation is based on the assumption that the tidal marsh is about 2 ft below mean high water (mhw). The average tidal flow is computed to be 1,348 cfs and the maximum tidal flow during an average tide will be 2,118 cfs. The tidal prism is about 14 times the total runoff volume from an average storm event in the Shipyard Creek basin, and about 117 times the runoff volume from the CNC during an average storm event. The tidal prism, which enters the Shipyard Creek twice a day, is about 2.4 times the runoff volume from a 2-year, 24-hour storm event in the Shipyard Creek basin and is about the same volume as a 50-year, 24-hour storm runoff.

The estimated Shipyard Creek water volume at MLW is 2,620 acre-ft; water volume at MHW is 3,312 acre-ft. Compared with the tidal prism volume, only about 21 percent of the water in the creek can be flushed out of the system within one tidal cycle (12.4 hours). Approximately 10 tidal cycles, or 5.2 days, will be required to reduce the concentration in the creek to 10 percent of its initial value.

### **Shipyard Creek Hydrologic and Hydrodynamic Analysis**

- The dilution ratio between the total Shipyard Creek runoff and the CNC runoff to Shipyard Creek is about 8.4 to 1.
- The dilution ratio between tidal flow and the CNC runoff to Shipyard Creek during an average storm event is about 117 to 1.
- The dilution ratio between tidal flow and total Shipyard Creek runoff during an average storm event is about 14 to 1.

- Shipyard Creek hydraulics is dominated by the tidal flow over the effects of storm water runoff, except when the storm event is more severe than a 50-year, 24-hour event.
- Shipyard Creek does not have efficient flushing capabilities. It would take more than 5 days to flush out 90 percent of a pollutant spill in the creek.

Shipyard Creek is in a low tidal energy environment. Pollutants move quite slowly in the creek, and suspended solids tend to be deposited in Shipyard Creek due to small current velocity and long hydraulic retention time. The suspended material carried from the Cooper River into Shipyard Creek during a flood tide may also be deposited in the lower reach of Shipyard Creek.

### **2.3 Development Impacting Shipyard Creek**

For this report, potential impacts to Shipyard Creek have been divided into those related to CNC and those related to other industrial activities in the immediate area.

#### **2.3.1 Non-CNC Sources Potentially Impacting Shipyard Creek**

The downstream portion of Shipyard Creek is considered a navigable water body, maintained to the USACE-authorized depth of 30 feet below MLW level to give large ships access to ship maintenance service piers on the southwestern shore. According to the USACE, Shipyard Creek can be dredged annually or as needed. The last reported dredging event was in 1996, when dredge spoils are reported to have been discharged onto Daniel Island, a designated upland Dredge Materials Area (DMA) on non-Navy property. The last Shipyard Creek dredge deposited in the Navy's DMA is reported to have been in 1986. As typical in dredged areas, periodic dredging can adversely affect the benthic communities.

A survey of the opposing shoreline indicated several potential non-CNC sources of contamination into the creek, most notably the Macalloy ferrochromium plant near the headwaters of the creek, which operated from the 1940s until 1988. It is now closed and undergoing USEPA-required remediation. The ferrochromium alloy plant operated four surface water discharge points under an NPDES permit issued by SCDHEC. These outfalls discharge

into the headwaters of Shipyard Creek; the permit limits for total chromium and hexavalent chromium had been exceeded repeatedly. On April 30, 1998, SCDHEC issued an emergency order closing Shipyard Creek to the harvesting of all shellfish due to the high concentrations of chromium detected in edible fish tissue. The order was to remain in effect until data show that the estuary's shrimp and crabs are safe for human consumption. This ban has since been lifted from Shipyard Creek.

Several large industrial facilities and recreational docks dominate the Shipyard Creek waters. The CNC lines the eastern shore, and portions of Zones G, H, and I drain to the creek. Currently a marina anchors the southernmost tip of the CNC, at the point where Shipyard Creek and the Cooper River converge. Shipyard Creek, Macalloy, and Foster Wheeler line the creek's western shore. Chevron Products and Kinder Morgan Bulk Terminal help complete the industrial landscape.

- The Macalloy Corporation facility covers 125 acres at the headwaters of Shipyard Creek, into which surface water runoff from the plant flows. The ferrochromium manufacturing facility was operated continuously by various owners from 1941 until 1998, when alloy production ceased. The following wastes were generated from the facility during the ferrochromium manufacturing process: chromium, arsenic, lead, barium, manganese, mercury, and zinc.
- Foster Wheeler Resource Recovery Plant, the largest incinerator of municipal solid waste in South Carolina, provided Charleston Naval Shipyard with most of its process steam from 1989 until the shipyard closed in 1996.
- Chevron Products Co. plant produces lubricants with additives at a plant along the western shore of Shipyard Creek. The plant is a part of the Chevron/Texaco Corporation.

- Kinder Morgan Bulk Terminal, known locally as Shipyard River Terminal (SRT), stores dry and liquid bulk products, including coal and petroleum coke, for shipment. Product can be transported from truck to rail to storage to ship or from ship to storage to truck to rail. The annual capacity for this location is 2,500,000 tons with a design system rate of 2,500 tons/hour for coal and petroleum coke. Storage consists of 250,000 tons open and 50,000 tons covered storage. SRT was modified for the transfer of cement for a dedicated customer. Product is transferred from oceangoing vessels to storage at an average rate of 7,000 tons per working day and product can be transferred from storage to rail cars or trucks at an average rate of 200 tons per hour per loading spout. The annual capacity for cement will be approximately 1,500,000 tons. Two storage domes were constructed to store the cement.

### **2.3.2 CNC-Related Sources Potentially Impacting Shipyard Creek**

Potential CNC sources of COPCs in Shipyard Creek are the upstream and near-shore SWMUs and AOCs, particularly SWMUs 9, 12, and 20 and AOC 196 in Zone H, and AOCs 689 and 690 in Zone I. One of the two dewatering outfalls from the Zone I dredge materials area also discharge into the emergent wetlands along Shipyard Creek. According to the 1998 Davis & Floyd drainage system evaluation report for CNC, the complex consists of 98 delineated drainage basins and associated storm water outfalls. Six of these drainage basins with upland SWMUs/AOCs discharge to Shipyard Creek.

Seven identified storm water outfalls line Shipyard Creek. The following SWMUs and AOCs are associated with a drainage basin discharging to Shipyard Creek: SWMUs 8, 11, 19, 20, 24, 121, and 159 and AOCs 633, 634, 636, 637, 649, 650, 654, 670, 690, 706.

Additional SWMUs/AOCs may sheet-flow into the water body but have no identified/associated drainage basin. For site descriptions of the above-listed SWMUs/AOCs, see Section 6 of the *Zone J Storm Water Effluent Evaluation Report* (EnSafe October 2002).

## **Zone H**

SWMU 9 is a closed landfill at the southeast end of CNC. Shipyard Creek delineates its southwest boundary and submerges a portion of the site during high tide. Few areas of the site are paved or capped to prevent rainwater infiltration. The following SWMUs and AOCs are in the SWMU 9 boundary.

- SWMU 19      A flat, fenced, non-vegetated area used for temporary storage of solid waste before transport offsite.
- SWMU 20      Previously a waste disposal/storage area; has minimal vegetative cover and evidence of buried debris.
- SWMU 121      Consists of Building 801 (used to collect, sort, and store recyclable material) and a satellite accumulation area (SAA).
- AOCs 649-51    Former storage areas for ship repair, painting, and sandblasting supplies; situated in an open, grassy, low-lying area.
- AOC 654      A former septic tank and leach field for Building 661; located in the southeast corner of SWMU 9.

Surface and subsurface soils were sampled in these SWMUs/AOCs, except for AOC 651. During the initial stages of the RFI, the evaluation of constituent transfer from soil to groundwater was based on a comparison of the soil data from these SWMUs/AOCs and the shallow groundwater data from the entire SWMU 9 area. Based on surface topography and associated surface water drainage patterns, the most likely receptors for migratory constituents originating in area are Shipyard Creek and its associated wetlands.

*Groundwater-to-Surface Water:* Contaminants were detected in groundwater associated with SWMU 9. This contaminant migration pathway will be evaluated in detail when the Navy provides groundwater COPCs for this SWMU.

*Soil-to-Sediment:* Contaminants were detected in soils during the SWMU 9 Remedial Investigation. The potential for these soils to migrate into Shipyard Creek and the surrounding wetlands will be further evaluated when the Navy provides soil COPCs for this SWMU.

SWMU 159, near Building 665 in the south-central portion of Zone H, is a former SAA used for the temporary storage of hazardous materials such as batteries, aerosol cans, and paint. An aboveground storage tank (AST) containing diesel fuel, a can crusher, and scattered debris were also found at this SWMU.

*Surface Soil-to-Sediment/Surface Water:* A thorough evaluation of this migration pathway will be included once the Navy provides the soil COPCs for this SWMU.

SWMU 196 is the area around Building 1838. Full containers (55-gallon drums to quart cans) of unknown or hazardous contents (paints, solvents, battery acid, and lube oils) were stored around Building 1838. Most were corroded and sitting directly on the ground between the building and the marsh associated with Shipyard Creek. Transformers were also stored in the area; there was no indication as to whether they may contain PCBs. Analytical results for samples from a nearby monitoring well indicated contamination concentrations that required further investigation.

This area is currently being leased by Charleston Public Works, which is using the area northwest of Building 1838 as a pipe lay-down yard. The inside of the building is being used for miscellaneous equipment storage. The areas northeast and east of Building 1838 are covered with open scrub grass and porous gravel. Because this area appears to have contamination issues separate from SWMU 9, it is currently being investigated as a separate waste management area.

*Groundwater-to-Surface Water:* This pathway will be closely evaluated due to the SWMU's proximity to Shipyard Creek as soon as the Navy provides the groundwater COPCs for this SWMU.

*Surface Soil-to-Sediment:* This pathway will be fully evaluated as soon as the Navy provides surface soil COPCs for this SWMU.

## **Zone I**

SWMU 12, the former firefighter training area in the southwestern portion of the southern peninsula, is the site where flammable liquids were pumped into a shallow 30' to 50' diameter pit, ignited, and then extinguished with water. Training occurred here between 1966 and 1971; the frequency of training and types of flammable liquids used are not documented. A gravel road and a clearing at the SWMU, which was used infrequently as a construction lay-down yard, are near the former training area's location.

*Groundwater-to-Surface Water:* This migration pathway will be evaluated when the Navy provides groundwater COPCs.

AOC 689 is the unpaved marina parking area and surrounding marshlands marking the southern tip of the base. The parking lot is currently in use. This site is bounded to the east by Cooper River, to the west by the dredged materials area roads, and to the south by Shipyard Creek. The marina parking area was reportedly used for unauthorized disposal of unknown materials during filling activities. This site also has a potential point-source discharge.

AOC 690, the network of roadways at the southern tip of the base, includes the Lunsford Loop, a portion of Juneau Avenue, and West Road. This site extends along West Road between Zones I and H. The roadside areas along these gravel roads, totaling approximately 4,500 feet, are reported locations of unauthorized hazardous materials dumping by Navy personnel. Petroleum products were suspected materials of concern, although the history of hazardous materials dumping is largely unknown. No groundwater samples were collected at this site; therefore, the groundwater-to-surface-water pathway could not be assessed. However, the site investigation did assess the soil-to-groundwater pathway.

The DMA covers approximately 68 acres at the southern end of the complex. This diked area has received dredging materials from the Cooper River and Shipyard Creek since the 1940s. Several area USACE dike relocation projects are documented in files in the Charleston Division office. Two spillways at the southern portion of the diked area allow deposited sediments to dewater, and then discharges them to Shipyard Creek and the Cooper River.

*Soil-to-Sediment:* This migration pathway will be fully evaluated when the Navy provides soil COPCs for this SWMU.

## **2.4 Other Investigations in Shipyard Creek**

In August 1988, USEPA submitted a final report on an assessment of sediments from five proposed dredge Charleston Estuary locations to the USACE. This report<sup>4</sup> presented toxicological effects to marine organisms by sediments from proposed dredge locations. Data from only one site (Site 5 in Shipyard Creek) were deemed applicable to the Zone J evaluation.

Ten-day tests with whole sediment and 96-hour tests with the suspended particulate phase identified no effects to lugworms, oysters, shrimp, or mysids from Site 5 sediment. No significant effects were noted based on this toxicity information.

At the same time as the toxicological study, sediment was analyzed at all locations to determine if constituents were accumulating in tissues of environmental receptors (bioaccumulation). Based on information on selected metals in Site 5 sediment, only arsenic and zinc exceeded USEPA Region 4 SVs. Bioaccumulation information indicated that cadmium, mercury, and zinc concentrations were significantly higher in oysters at Site 5 than at a reference location. Mercury, lead, and chromium were also significantly higher in Site 5 shrimp than reference concentrations. In addition lugworms bioaccumulated lead in tissue. For more details, refer to the *Zone J RFI Work Plan (EnSafe/Allen & Hoshall September 1996)*.

The comprehensive 1990 Charleston Harbor Study (CHS) detected high chromium concentrations in Shipyard Creek sediments (81.18 mg/kg at the uppermost station). Copper concentrations in Shipyard Creek were also high, exceeding those observed in the Cooper River.

In May 1992, the USACE conducted the Shipyard River New Work Project to collect and analyze soil samples from six CNC sites near Shipyard Creek (the west shoreline of the southern peninsula) to document the suitability of this material for disposal. Specific

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<sup>4</sup> *Biological and Chemical Assessment of Sediments from Proposed Dredge Sites in Charleston Harbor*

parameters analyzed were metals (including organotins), volatile organics, and dioxins. Results showed the presence of organotins at all six sampling locations, with the lowest concentrations for tributyltin along the shoreline and within the intertidal area; the highest concentrations were in dry upland soils. Several PAH compounds were identified at stations within the wooded areas; dioxins were detected in soil and sediment from both inland and intertidal areas.

A May 1995 report<sup>5</sup> documented the results of studies conducted to evaluate existing Environmental Monitoring and Assessment Program (EMAP) indicators and develop new indicators of environmental quality for southeastern Atlantic estuaries. At 24 stations throughout the Carolinian Province, physicochemical parameters were measured in addition to sediment contamination, laboratory toxicity tests, bioaccumulation, and fish, shellfish, and benthos abundance. A single station was sampled in Shipyard Creek (SPY) and the tributary was classified as "degraded" based on bulk sediment contamination exceedances of Long and Morgan's (1990) ER-L (effects range-low) values for several metals (arsenic, chromium, copper, lead, manganese, and zinc) and PAH compounds. Also, significant toxicity for sediments from Shipyard Creek was found in both the seed clam toxicity test and Microtox bioassay. However, other toxicity tests with amphipods and mysid shrimp, however, indicated that Shipyard Creek sediments were not toxic to these species.

In bioaccumulation studies on oysters, chromium, zinc, copper, nickel, iron, and manganese tissue concentrations were increased after oyster exposure to Shipyard Creek sediment. Benthic community indices for Shipyard Creek were considerably lower than those found in reference areas.

The findings presented in a 1995 MRRI report<sup>6</sup> evaluated water quality parameters, sediment characteristics, contaminants, and toxicity tests; benthic communities; and nektonic (free-

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<sup>5</sup> EMAP/NS&T Studies in the Carolinian Province: Indicator Testing and Evaluation in Southeastern Estuaries

<sup>6</sup> Year One Demonstration Project Studies Conducted in the Carolinian Province: Results and Summaries (Marine Resource Research Institute, September 1995)

swimming) assemblages conducted at 84 sites from Virginia to Florida. One location in Shipyard Creek was selected as a supplemental station and sampled during the pilot year, 1994.

Although comprehensive sampling was not conducted at the supplemental stations, sediment samples were collected for contaminant analyses, characterization, and toxicity testing. Also, oysters and clams were deployed to determine bioaccumulation rates.

Concentrations of PAHs, pesticides, arsenic, and chromium exceeded NOAA Effect Range-Low (ER-L) values in Shipyard Creek sediments during this sampling program. Based on the classification scheme presented in the MRRI document Shipyard Creek was designated as a "degraded" site.

Survival data for a sediment 10-day solid-phase toxicity test, using the amphipod *Ampelisca abdita*, indicated that Shipyard Creek was not toxic. But when amphipod *A. verrilli* was used, survival rates were significantly lower than they were in the control group and toxicity assays using seed clams, indicating that Shipyard Creek was toxic.

For both clams and oysters, growth was significantly different than it was in control groups. Based on the sediment concentrations, bioaccumulation studies showed elevated concentrations of chromium in oysters deployed in Shipyard Creek. Clam concentrations did not reflect the sediment loads.

The March 1996 *Tidal Creek Project: Interim Report* discussed the results of a 1994 MRRI study to develop information needed to ensure that tidal creek nursery habitats were adequately protected. Twenty-four tidal creeks were sampled for numerous parameters to determine environmental and ecological status and thus provide resource agencies with a baseline against which they could measure their protection policies and programs. Two locations at Shipyard Creek, one each in the upper and lower reaches, were included in this project.

In this report, Shipyard Creek was classified as a "developed-industrial" tidal creek system. Physicochemical attributes in Shipyard Creek were similar to other "developed" creeks studies.

Sediment trace metal concentrations for chromium copper, lead, arsenic, and zinc exceeded NOAA ER-L values in the upper reach of the creek. Arsenic, chromium, lead, and zinc concentrations were higher than the ER-L values in the lower reach. Chromium also exceeded NOAA's effects range-median (ER-M) value in both reaches of the creek. Pesticide concentrations in the creek were insignificant and PAH concentrations were not measured.

Benthic assemblage data did not identify anything unique for Shipyard Creek. Species composition and abundance were similar to the other "developed" creeks studied. Grass shrimp populations in the creek were much lower than in the other four creeks selected for comparison. No relationships were presented for shrimp abundance to contaminant exposure, habitat availability, or water quality regimes.

## **2.5 Contaminant Fate-and-Transport Mechanisms**

The physical and chemical dynamics within the Charleston estuarine system are perhaps the most influential and complicating factors in the overall assessment of Zone J, and probably have a severe effect on contaminant distribution. Contaminants present on upland CNC SWMUs and AOCs could potentially enter Shipyard creek via the following contaminant fate-and-transport mechanisms:

- Sheet flow of soil contaminants into the storm water discharge system and discharge directly into Shipyard Creek at the identified outfalls and discharge points
- Overland flow of soil contaminants directly into the marsh and Shipyard Creek from AOCs and SWMUs that are not drained by the CNC storm water system
- Migration of contaminated groundwater either directly into Shipyard Creek or into the storm water effluent system and then into the creek via the CNC outfalls

CNC contaminant fate-and-transport mechanisms will be re-evaluated as soon as the Navy provides the necessary upland data on surface soils and groundwater to determine whether contaminants could be transported into the Cooper River from CNC sources.

## **2.6 Complete Exposure Pathways**

Three exposure pathways are potentially complete based on the previous investigations conducted at CNC and within Shipyard Creek. These potentially complete exposure pathways will be evaluated in the Shipyard Creek SLERA to identify which contaminants may be present at concentrations causing potentially unacceptable risk for exposed ecological receptors.

- Direct exposure to contaminants dissolved in Shipyard Creek surface water
- Direct exposure to contaminants in Shipyard Creek sediment and surrounding wetlands
- Uptake from ingestion of contaminated surface water, sediments and prey (biota)

## **3.0 STEP 2 – EXPOSURE ESTIMATE AND RISK CALCULATION**

The Shipyard Creek SLERA will evaluate potential risk from all exposure media: surface water (storm water drainage system effluent), groundwater (via the groundwater-to-surface-water pathway), surface soil (via direct runoff from adjacent SWMUs and AOCs), and sediment. The evaluation will be based on direct exposure using the hazard quotient (HQ) method by comparing the maximum concentration of constituents identified in each medium with the applicable reference concentrations and US EPA Region 4 ecological screening values. Based on risk management decisions made by the CNC partnering team, the maximum concentrations will also be compared with a site-specific reference concentration developed for CNC. Region 4 screening values will also be used. These comparisons will be summarized in tables and discussed in the sections below.

### **3.1 Surface Water Effluent Ecological Effects Evaluation**

The storm water effluent samples from seven storm water drainage system locations were included for the Shipyard Creek investigation. Locations are shown on Figure 3-1. Screening was based on the following criteria, as agreed upon by the partnering team:

- Comparison of maximum concentrations of detected constituents and sample quantitation limits (SQLs) with reference effluent concentrations at locations not related to CNC

- Comparison of maximum concentrations of detected constituents and SQLs to EPA Region 4 chronic saltwater ESVs
- Comparison of concentrations of nondetected constituents and SQLs to EPA Region 4 chronic saltwater ESVs
- Evaluation of detection and exceedances frequency for each constituent detected.

Results are presented in Table 3-1.

To determine the potential for unacceptable ecological risk with each exposure pathway, environmental media concentrations will be compared with EPA Region 4's ecological screening values, which are presented in the screening COPC tables. Concentrations below EPA Region 4 ESVs are considered an acceptable level of risk. Therefore, this screen can only be used to determine whether there is a level of risk to ecological receptors that requires no further investigation, or if additional information is needed to fully evaluate the potential for risk within Shipyard Creek.

The US EPA Region 4 saltwater ESVs were derived from Water Quality Criteria documents and represent the chronic ambient water quality criteria values for the protection of aquatic life. These criteria are intended to protect 95% of the species, 95% of the time. Therefore, anytime the maximum concentration of a constituent is less than the USEPA Region 4 ESV, no adverse ecological effect is expected.

### **3.1.1 Storm Water Drainage System Inorganic Preliminary COPCs**

In all, 16 inorganics were detected in at least one of the seven storm water drainage system effluent samples collected as part of the Zone J investigation. None of the detections exceeded EPA Region 4 ESVs, however, barium at EFF067 (100 µg/L) and manganese at EFF063 (140 µg/L) exceeded their respective reference concentrations; therefore they are included as preliminary COPCs.

### **3.1.2 Storm Water Drainage System Organic Preliminary COPCs**

One SVOC was detected in the seven storm water drainage system effluent samples collected as part of the Zone J investigation. In the one location from which it was detected (EFF067), pentachlorophenol had a concentration of 14 µg/L which exceeded its EPA Region 4 ESV (7.9 µg/L).

### **3.2 Groundwater-to -Surface Water Ecological Effects Evaluation**

To be completed once the Navy provides data.

### **3.3 Surface Soil Ecological Effects Evaluation**

To be completed once the Navy provides data.

### **3.4 Shipyard Creek Sediment Ecological Effects Evaluation**

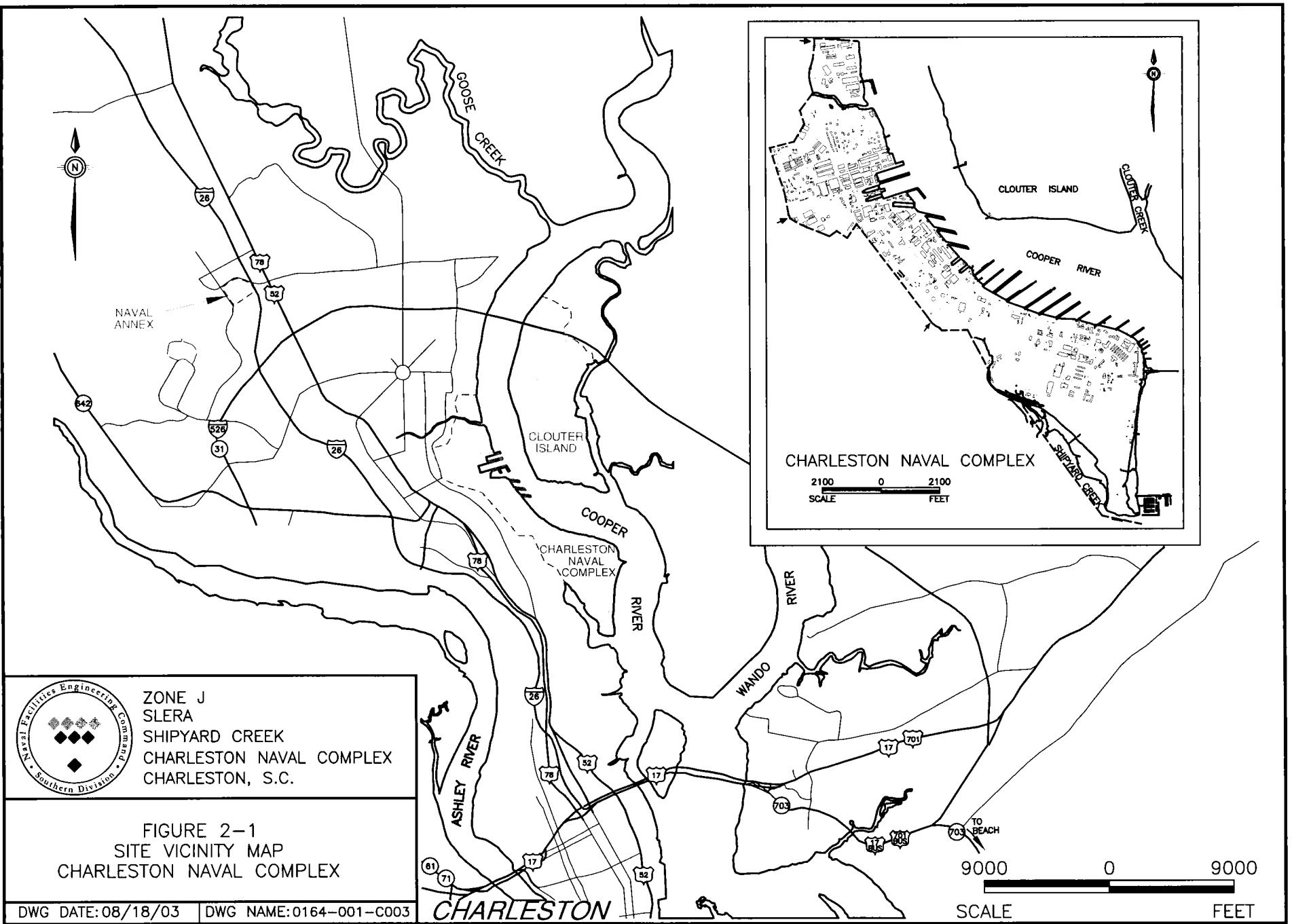
To date, 48 CNC sediment samples have been collected from Shipyard Creek: 24 collected as part of Zone J RFI, 15 collected from SWMU 9 (a former landfill) as part of the Zone H RFI, and 9 from the headwaters of the Shipyard Creek as part of the ongoing assessment of SWMU 196. The sediment sample locations for Shipyard Creek are shown on Figure 3-2. Table 3-2 summarizes the analytical results.

To identify screening-level COPCs, the maximum exposure point (the highest detected concentration) was compared with the USEPA Region 4 ecological screening values using the hazard quotient (HQ) method. Risk managers can use this method to determine the constituents in Shipyard Creek that do not pose unacceptable levels of risk to the environment.

HQs for Shipyard Creek have been included in Table 3-2 and categorized in Table 3-3 based on constituent types (inorganic, SVOC, VOC, pesticide, or PCB), the availability of an SV for comparison, and whether its inclusion as a COPC is based on a detected concentration or detection limit.

#### **4.0 CONCLUSIONS AND UNCERTAINTIES**

As soon as the additional information from the Navy is incorporated into the SLERA the conclusions and uncertainties section will be completed.





800 0 800 Feet

LEGEND	
Shipyard Creek Storm Water Outfall	Storm Water Lines
★ Shipyard Creek Storm Water Effluent Sample	□ ZONE-J-CATCH-BASIN
	— ZONE-J-DRAIN-LINE
	— ZONE-J-DRAINAGE-DITCH

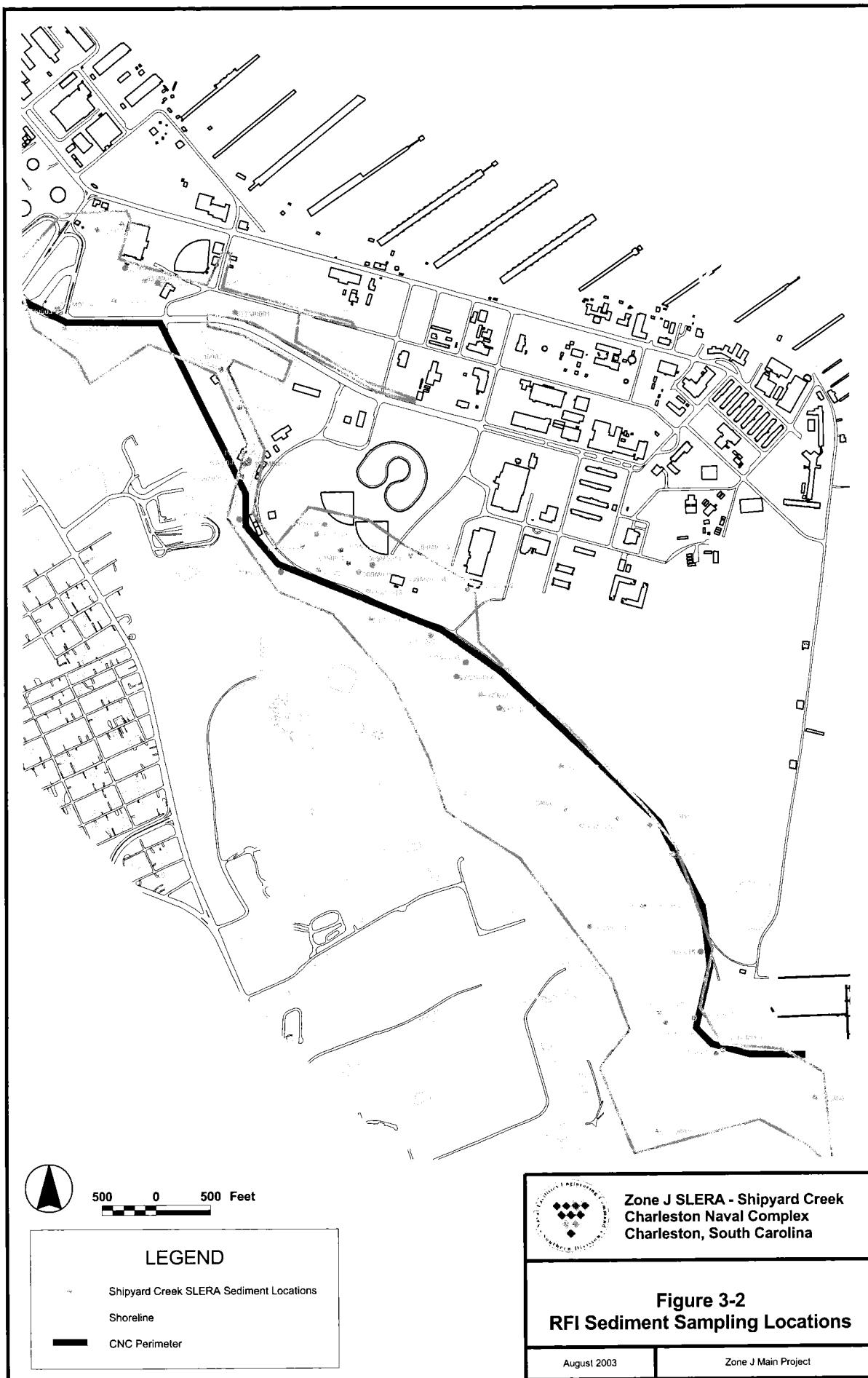


Zone J SLERA - Shipyard Creek  
Charleston Naval Complex  
Charleston, South Carolina

**Figure 3-1**  
**RFI Storm Water Effluent**  
**and Outfall Locations**

August 2003

Zone J Main Project



**Table 3-1**  
**Shipyard Creek SLERA**  
**Storm Water Effluent COPC Screening**

Constituent	Frequency of Detection		Range of Detections				Sample Quantitation Limits (SQL)		Location of Maximum Detection	Screening Value (SV)	Detections Exceeding SV	Screening HQ	Reference Concentration	COPC Category	COPC Yes / No		
	# det.	# analyzed	Min	Q	Max	Q	Mean	Min SQL	Max SQL								
Aluminum	7	7	140	J	930		584.29			EFF068	NSV		NA	3277.67	D	No	
Antimony	0	7						3.8	20		NSV		NA	5.93	C	No	
Arsenic	0	7						2.7	10			36	NA	6.88	C	No	
<b>Barium</b>	<b>7</b>	<b>7</b>	<b>7.6</b>	<b>J</b>	<b>100</b>		<b>33.80</b>			<b>EFF067</b>	<b>NSV</b>		NA	<b>60.31</b>	<b>A</b>	<b>Yes</b>	
Beryllium	0	7						0.3	4		NSV		NA	0.41	C	No	
Cadmium	1	7	0.61	J	0.61	J	0.94	0.5	5	EFF067	9.3	0	0.07	1.29	B, D	No	
Calcium	7	7	20000		70000		37571.43			EFF067	NSV		NA	53455.56	A	No*	
Chromium	6	7	1.5	J	3.3	J	2.06	0.7	0.7	EFF068	50	0	0.07	13	B, C	No	
Cobalt	0	7						0.8	10		NSV		NA	2	D	No	
Copper	7	7	3.8	J	25		10.26			EFF068	2.9	7	8.62	41.98	A, D	No	
Iron	7	7	510		1000		692.86			EFF068	NSV		NA	4134.44	A, D	No	
Lead	5	7	2.5	J	7.5		3.86	2.2	5	EFF068	8.5	0	0.88	33.63	B, D	No	
Magnesium	7	7	2500		28000		11700.00			EFF063	NSV	7	NA	49255.56	A	No*	
<b>Manganese</b>	<b>7</b>	<b>7</b>	<b>16</b>		<b>140</b>		<b>52.43</b>			<b>EFF063</b>	<b>NSV</b>	<b>7</b>	NA	<b>74.52</b>	<b>A</b>	<b>Yes</b>	
Nickel	2	7	1.3	J	2.6	J	3.90	1.7	40	EFF068	8.3	0	0.31	5.14	B, D	No	
Potassium	7	7	2300		13000		7300.00			EFF068	NSV		NA	23678.89	D	No	
Selenium	1	7	5.6	J	5.6	J	3.99	4.9	10	EFF064	71	0	0.08	NA	B, D	No	
Silver	0	7						1.4	10			0.23	0	NA	2.34	F	No
Sodium	7	7	14000	J	260000		116571.43			EFF067	NSV		NA	395333.33	D	No	
Thallium	0	7						6.3	10		21.3	0	NA	5.77	C	No	
Tin	0	7						4.1	50		NSV		NA	NA	C	No	
Vanadium	7	7	2.2	J	5.4	J	3.50			EFF065	NSV		NA	15.59	D	No	
Zinc	7	7	18	J	110		56.43			EFF065	86	2	1.28	307.83	A, D	No	
Mercury	0	7						0.1	0.1		0.025	0	NA	NA	C	No	
4,4'-DDD	0	7						0.1	0.1		0.025	0	NA	NA	C	No	
4,4'-DDE	0	7						0.1	0.1		0.14	0	NA	NA	C	No	
4,4'-DDT	<b>0</b>	<b>7</b>					<b>0.1</b>	<b>0.1</b>		<b>0.001</b>	0		NA	<b>F</b>	<b>Yes</b>		
Aldrin	0	7						0.05	0.05		0.13	0	NA	NA	C	No	
alpha-BHC	0	7						0.05	0.05		1400	0	NA	NA	C	No	
alpha-Chlordane	<b>0</b>	<b>7</b>					<b>0.05</b>	<b>0.05</b>		<b>0.004</b>	0		NA	<b>F</b>	<b>Yes</b>		
beta-BHC	0	7						0.05	0.05		NSV		NA	NA	C	No	
Chlordane (technical)	<b>0</b>	<b>7</b>					<b>0.5</b>	<b>0.5</b>		<b>0.004</b>	0		NA	<b>F</b>	<b>Yes</b>		
delta-BHC	0	7						0.05	0.05		NSV		NA	NA	C	No	
Dieldrin	<b>0</b>	<b>7</b>					<b>0.1</b>	<b>0.1</b>		<b>0.0019</b>	0		NA	<b>F</b>	<b>Yes</b>		
Endosulfan I	<b>0</b>	<b>7</b>					<b>0.05</b>	<b>0.05</b>		<b>0.0087</b>	0		NA	<b>F</b>	<b>Yes</b>		
Endosulfan II	<b>0</b>	<b>7</b>					<b>0.1</b>	<b>0.1</b>		<b>0.0087</b>	0		NA	<b>F</b>	<b>Yes</b>		
Endosulfan sulfate	0	7						0.1	0.1		NSV		NA	NA	C	No	
Endrin	0	7						0.1	0.1		0.0023	0	NA	NA	C	No	

**Table 3-1**  
**Shipyard Creek SLERA**  
**Storm Water Effluent COPC Screening**

Constituent	Frequency of Detection		Range of Detections				Sample Quantitation Limits (SQL)		Location of Maximum Detection	Screening Value (SV)	Detections Exceeding SV	Screening HQ	Reference Concentration	COPC Category	COPC Yes / No
	# det.	# analyzed	Min	Q	Max	Q	Mean	Min SQL	Max SQL						
Endrin aldehyde	0	7						0.1	0.1		NSV		NA	C	No
Endrin ketone	0	7						0.1	0.1		NSV		NA	C	No
gamma-BHC (Lindane)	0	7						0.05	0.05		0.016	0	NA	C	No
gamma-Chlordane	0	7						0.05	0.05		0.004	0	NA	F	Yes
Heptachlor	0	7						0.05	0.05		0.0036	0	NA	F	Yes
Heptachlor epoxide	0	7						0.05	0.05		0.0036	0	NA	F	Yes
Methoxychlor	0	7						0.5	0.5		NSV		NA	C	No
Toxaphene	0	7						5	5		0.0002	0	NA	F	Yes
Aroclor-1016	0	7						1	1		0.03	0	NA	F	Yes
Aroclor-1221	0	7						2	2		0.03	0	NA	F	Yes
Aroclor-1232	0	7						1	1		0.03	0	NA	F	Yes
Aroclor-1242	0	7						1	1		0.03	0	NA	F	Yes
Aroclor-1248	0	7						1	1		0.03	0	NA	F	Yes
Aroclor-1254	0	7						1	1		0.03	0	NA	F	Yes
Aroclor-1260	0	7						1	1		0.03	0	NA	F	Yes
1,2,4-Trichlorobenzene	0	7						10	10		4.5	0	NA	C	No
1,2-Dichlorobenzene	0	7						10	10		19.7	0	NA	C	No
1,3-Dichlorobenzene	0	7						10	10		28.5	0	NA	C	No
1,4-Dichlorobenzene	0	7						10	10		19.9	0	NA	C	No
2,2'-Oxybis(1-chloropropane)[bis(2-Chloroisopropyl)ether]	0	7						10	10		NSV		NA	C	No
2,4,5-Trichlorophenol	0	7						10	10		NSV		NA	C	No
2,4,6-Trichlorophenol	0	7						10	10		NSV		NA	C	No
2,4-Dichlorophenol	0	7						10	10		NSV		NA	C	No
2,4-Dimethylphenol	0	7						10	10		NSV		NA	C	No
2,4-Dinitrophenol	0	7						50	50		48.5		NA	C	No
2,4-Dinitrotoluene	0	7						10	10		NSV		NA	C	No
2,6-Dinitrotoluene	0	7						10	10		NSV		NA	C	No
2-Chloronaphthalene	0	7						10	10		NSV		NA	C	No
2-Chlorophenol	0	7						10	10		NSV		NA	C	No
2-Methyl-4,6-dinitrophenol	0	7						50	50		NSV		NA	C	No
2-Methylnaphthalene	0	7						10	10		NSV		NA	C	No
2-Methylphenol (o-Cresol)	0	7						10	10		NSV		NA	C	No
2-Nitroaniline	0	7						50	50		NSV		NA	C	No
2-Nitrophenol	0	7						10	10		NSV		NA	C	No
3&4-Methylphenol (m&p-cresol)	0	7						10	10		NSV		NA	C	No
3,3'-Dichlorobenzidine	0	7						20	20		NSV		NA	C	No

**Table 3-1**  
**Shipyard Creek SLERA**  
**Storm Water Effluent COPC Screening**

Constituent	Frequency of Detection		Range of Detections				Sample Quantitation Limits (SQL)		Location of Maximum Detection	Screening Value (SV)	Detections Exceeding SV	Screening HQ	Reference Concentration	COPC Category	COPC Yes / No	
	# det.	# analyzed	Min	Q	Max	Q	Mean	Min SQL	Max SQL							
3-Nitroaniline	0	7						50	50		NSV		NA	NA	C	No
4-Bromophenylphenyl ether	0	7						10	10		NSV		NA	NA	C	No
4-Chloro-3-methylphenol	0	7						10	10		NSV		NA	NA	C	No
4-Chloroaniline	0	7						20	20		NSV		NA	NA	C	No
4-Chlorophenylphenyl ether	0	7						10	10		NSV		NA	NA	C	No
4-Nitroaniline	0	7						50	50		NSV		NA	NA	C	No
4-Nitrophenol	0	7						50	50		71.7	0	NA	NA	C	No
Acenaphthene	0	7						10	10		9.7	0	NA	NA	C	No
Acenaphthylene	0	7						10	10		NSV		NA	NA	C	No
Anthracene	0	7						10	10		NSV		NA	NA	C	No
Benzo(a)anthracene	0	7						10	10		NSV		NA	NA	C	No
Benzo(a)pyrene	0	7						10	10		NSV		NA	NA	C	No
Benzo(b)fluoranthene	0	7						10	10		NSV		NA	NA	C	No
Benzo(g,h,i)perylene	0	7						10	10		NSV		NA	NA	C	No
Benzo(k)fluoranthene	0	7						10	10		NSV		NA	NA	C	No
bis(2-Chloroethoxy)methane	0	7						10	10		NSV		NA	NA	C	No
bis(2-Chloroethyl)ether	0	7						10	10		NSV		NA	NA	C	No
bis(2-Ethylhexyl)phthalate	0	7						10	10		NSV		NA	NA	C	No
Butylbenzylphthalate	0	7						10	10		29.4	0	NA	NA	C	No
Carbazole	0	7						10	10		NSV		NA	NA	C	No
Chrysene	0	7						10	10		NSV		NA	NA	C	No
Dibenzo(a,h)anthracene	0	7						10	10		NSV		NA	NA	C	No
Dibenzofuran	0	7						10	10		NSV		NA	NA	C	No
Diethylphthalate	0	7						10	10		75.9	0	NA	NA	C	No
Dimethylphthalate	0	7						10	10		580	0	NA	NA	C	No
Di-n-butylphthalate	0	7						10	10		3.4	0	NA	NA	C	No
Di-n-octylphthalate	0	7						10	10		NSV		NA	NA	C	No
Fluoranthene	0	7						10	10		1.6	0	NA	NA	C	No
Fluorene	0	7						10	10		NSV		NA	NA	C	No
Hexachlorobenzene	0	7						10	10		NSV		NA	NA	C	No
Hexachlorobutadiene	0	7						10	10		0.32	0	NA	NA	F	Yes
Hexachlorocyclopentadiene	0	7						10	10		0.07	0	NA	NA	F	Yes
Hexachloroethane	0	7						10	10		9.4	0	NA	NA	C	No
Indeno(1,2,3-cd)pyrene	0	7						10	10		NSV		NA	NA	C	No
Isophorone	0	7						10	10		129		NA	NA	C	No
Naphthalene	0	7						10	10		23.5	0	NA	NA	C	No
Nitrobenzene	0	7						10	10		66.8	0	NA	NA	C	No
n-Nitrosodi-n-propylamine	0	7						10	10		NSV		NA	NA	C	No

**Table 3-1**  
**Shipyard Creek SLERA**  
**Storm Water Effluent COPC Screening**

Constituent	Frequency of Detection		Range of Detections				Sample Quantitation Limits (SQL)		Location of Maximum Detection	Screening Value (SV)	Detections Exceeding SV	Screening HQ	Reference Concentration	COPC Category	COPC Yes / No	
	# det.	# analyzed	Min	Q	Max	Q	Mean	Min SQL	Max SQL							
N-Nitrosodiphenylamine	0	7					10	10		33000	0	NA	NA	C	No	
<b>Pentachlorophenol</b>	<b>1</b>	<b>7</b>	<b>14</b>	J	<b>14</b>	J	<b>23.43</b>	<b>50</b>	<b>50</b>	<b>EFF067</b>	<b>7.9</b>	<b>1</b>	<b>1.77</b>	<b>NA</b>	<b>A</b>	<b>Yes</b>
Phenanthrene	0	7					10	10		NSV		NA	NA	C	No	
Phenol	0	7					10	10		58	0	NA	NA	C	No	
Pyrene	0	7					10	10		NSV		NA	NA	C	No	
Cyanide, Total	0	7					10	10		1	0	NA	16.33	C	No	

**Notes:**

NSV

Notes constituents for which no EPA Region 4 SV or site specific reference concentration is available.

NA

Notes that a screening HQ cannot be calculated (either no SV or constituent was not detected).

*Italicized numbers*

Indicates U-flagged data that represent the sample quantitation limits (DL) for each constituent.

**Contaminant Categories**

A

Max detect greater than EPA Region 4 SV and/or reference concentration.

B

Max detect less than Region 4 SV.

C

Constituent not detected and MDL is either less than EPA Region 4 ESV and reference concentrations or no EPA Region 4 ESV is available.

Further analysis provided in text of report.

D

Max detect less than the reference concentration.

E

Constituent detected but no EPA Region 4 SV available.

F

Constituent not detected and MDL is greater than EPA Region 4 SV. Though constituent is listed as a preliminary COPC, further analysis is not warranted.

\*

Notes a category 4 COPC, which is not being considered a COPC for this SLERA because it is considered to be an essential nutrient and are part of the normal makeup of saltwater.

**Table 3-2**  
**Shipyard Creek SLERA**  
**Sediment COPC Screening Table**

Parameter	Frequency of Detection	Max Detect	Location of Maximum Conc.	Screening Value (SV)	Max. HQ	# of Samples Exceeding SBV	Range of Non-detects		Retained for Refinement?	Rationale	Parameter
							Min	Max			
<b>Inorganics (mg/kg)</b>											
Aluminum	48/48	34,300.0	SYCM016A01	NSV	-	-	-	-	Yes	C	Aluminum
Antimony	9/48	6.9	009M001301	12	0.58	0	0.26 UJ	7.8 U	No	B	Antimony
Arsenic	48/48	22.7	SYCM001701	7.24	3.14	36	-	-	Yes	A	Arsenic
Barium	48/48	122.0	009M001401	NSV	-	-	-	-	Yes	C	Barium
Beryllium	48/48	1.5	SYCM001701	NSV	-	-	-	-	Yes	C	Beryllium
Cadmium	40/48	1.7	009M000801	1	1.70	4	0.7 U	0.03 U	Yes	A	Cadmium
Calcium	48/48	220,000.0	009M000801	NSV	-	-	-	-	Yes	C	Calcium
Chromium	48/48	291.0	009M000401	52.3	5.56	21	-	-	Yes	A	Chromium
Cobalt	48/48	7.6	SYCM016A01	NSV	-	-	-	-	Yes	C	Cobalt
Copper	48/48	228.0	009M000201	18.7	12.19	26	-	-	Yes	A	Copper
Iron	48/48	66,300.0	009M001401	NSV	-	-	-	-	Yes	C	Iron
Lead	44/48	150.0	196M000202	30.2	4.97	11	1.9 U	10.1 U	Yes	A	Lead
Magnesium	48/48	12,300.0	SYCM000701	NSV	-	-	-	-	Yes	C	Magnesium
Manganese	48/48	838.0	SYCM002001	NSV	-	-	-	-	Yes	C	Manganese
Mercury	24/48	0.7	009M000401	0.13	5.31	17	0.02 U	0.17 U	Yes	A	Mercury
Nickel	48/48	37.3	009M000401	15.9	2.35	23	-	-	Yes	A	Nickel
Potassium	48/48	4,390.0	SYCM001401	NSV	-	-	-	-	Yes	C	Potassium
Selenium	27/48	2.9	SYCM002001	NSV	-	-	-	-	Yes	C	Selenium
Silver	7/48	1.4	SYCM002001	2	0.70	0	-	-	No	B	Silver
Sodium	48/48	31,400.0	SYCM002001	NSV	-	-	-	-	Yes	C	Sodium
Thallium	6/48	3.3	SYCM001201	NSV	-	-	-	-	Yes	C	Thallium
Tin	10/33	129.0	196M000201	NSV	-	-	-	-	Yes	C	Tin
Monobutyltin	0/39	-	-	NSV	-	-	1.0 U	50.0 U	Yes	C	Monobutyltin
Dibutyltin	0/39	-	-	NSV	-	-	1.0 U	50 U	Yes	C	Dibutyltin
Tributyltin	0/39	-	-	NSV	-	-	1.0 U	50 U	Yes	C	Tributyltin
Tetrabutyltin	0/24	-	-	NSV	-	-	1.0 U	50 U	Yes	C	Tetrabutyltin
Vanadium	48/48	83.9	SYCM001401	NSV	-	-	-	-	Yes	C	Vanadium
Zinc	48/48	387.0	009M000401	124	3.12	-	-	-	Yes	A	Zinc
<b>SVOCs (µg/kg)</b>											
1,2,4-Trichlorobenzene	0/48	-	-	NSV	-	-	190 U	18000 U	Yes	C	1,2,4-Trichlorobenzene
1,2-Dichlorobenzene	3/48	400.0	-	NSV	-	-	-	-	Yes	C	1,2-Dichlorobenzene
1,3-Dichlorobenzene	3/48	830.0	-	NSV	-	-	-	-	Yes	C	1,3-Dichlorobenzene
1,4-Dichlorobenzene	5/48	3,900.0	-	NSV	-	-	190 U	18000 U	Yes	C	1,4-Dichlorobenzene
2,2'-oxybis(1-Chloropropane)	0/48	-	-	NSV	-	-	190 U	18000 U	Yes	C	2,2'-oxybis(1-Chloropropane)
2,4,5-Trichlorophenol	0/48	-	-	NSV	-	-	960 U	91000 U	Yes	C	2,4,5-Trichlorophenol
2,4,6-Trichlorophenol	0/48	-	-	NSV	-	-	190 U	18000 U	Yes	C	2,4,6-Trichlorophenol
2,4-Dichlorophenol	0/48	-	-	NSV	-	-	190 U	18000 U	Yes	C	2,4-Dichlorophenol
2,4-Dimethylphenol	0/48	-	-	NSV	-	-	190 U	18000 U	Yes	C	2,4-Dimethylphenol
2,4-Dinitrophenol	0/48	-	-	NSV	-	-	190 U	18000 U	Yes	C	2,4-Dinitrophenol
2,4-Dinitrotoluene	0/48	-	-	NSV	-	-	960 U	91000 U	Yes	C	2,4-Dinitrotoluene
2,6-Dinitrotoluene	0/48	-	-	NSV	-	-	190U	18000 U	Yes	C	2,6-Dinitrotoluene
2-Chloronaphthalene	0/48	-	-	NSV	-	-	190U	18000 U	Yes	C	2-Chloronaphthalene
2-Chlorophenol	0/48	-	-	NSV	-	-	190U	18000 U	Yes	C	2-Chlorophenol
2-Methyl-4,6-Dinitrophenol	0/48	-	-	NSV	-	-	960 U	91000 U	Yes	C	2-Methyl-4,6-Dinitrophenol

**Table 3-2**  
**Shipyard Creek SLERA**  
**Sediment COPC Screening Table**

Parameter	Frequency of Detection	Max Detect	Location of Maximum Conc.	Screening Value (SV)	Max. HQ	# of Samples Exceeding SBV	Range of Non-detects		Retained for Refinement?	Rationale	Parameter
							Min	Max			
2-Methylnaphthalene	4/48	52.0	196M000101	20.23	2.57	-	70 U	3600 U	Yes	A	2-Methylnaphthalene
2-Methylphenol (o-Cresol)	0/48	-	-	NSV	-	-	190 U	18000 U	Yes	C	2-Methylphenol (o-Cresol)
2-Nitroaniline	0/48	-	-	NSV	-	-	960 U	91000 U	Yes	C	2-Nitroaniline
2-Nitrophenol	0/48	-	-	NSV	-	-	190 U	18000 U	Yes	C	2-Nitrophenol
3,3'-Dichlorobenzidine	0/48	-	-	NSV	-	-	380U	36000 U	Yes	C	3,3'-Dichlorobenzidine
3-Nitroaniline	0/48	-	-	NSV	-	-	960 U	91000 U	Yes	C	3-Nitroaniline
4-Bromophenyl-phenylether	0/48	-	-	NSV	-	-	190 U	18000 U	Yes	C	4-Bromophenyl-phenylether
4-Chloro-3-methylphenol	0/48	-	-	NSV	-	-	190 U	18000 U	Yes	C	4-Chloro-3-methylphenol
4-Chloroaniline	0/48	-	-	NSV	-	-	190 U	18000 U	Yes	C	4-Chloroaniline
4-Chlorophenylphenylether	0/48	-	-	NSV	-	-	190 U	18000 U	Yes	C	4-Chlorophenylphenylether
4-Methylphenol (p-Cresol)	1/48	49.0	196M000102	NSV	-	-	190 U	18000 U	Yes	C	4-Methylphenol (p-Cresol)
4-Nitroaniline	0/48	-	-	NSV	-	-	960 UJ	91000 U	Yes	C	4-Nitroaniline
4-Nitrophenol	0/48	-	-	NSV	-	-	960 U	91000 U	Yes	C	4-Nitrophenol
Acenaphthene	1/48	230.0	009M001401	6.71	34.28	-	70 U	3600 U	Yes	A	Acenaphthene
Acenaphthylene	5/48	94.0	196M000101	5.87	16.01	-	70 U	3600 U	Yes	A	Acenaphthylene
Aniline	0/39	-	-	NSV	-	-	190 U	18000 U	Yes	C	Aniline
Anthracene	6/48	110.0	196M000201	46.9	2.35	-	70 U	3600 U	Yes	A	Anthracene
Benzidine	0/15	-	-	NSV	-	-	960 U	91000 U	Yes	C	Benzidine
Benzo(a)anthracene	15/48	860.0	196M000101	74.8	11.5	-	190 U	18000 U	Yes	A	Benzo(a)anthracene
Benzo(a)pyrene	11/48	1,600.0	196M000101	88.8	18.0	-	190 U	18000 U	Yes	A	Benzo(a)pyrene
Benzo(b)fluoranthene	13/48	270.0	196M000102	NSV	-	-	190 UJ	18000 U	Yes	C	Benzo(b)fluoranthene
Benzo(g,h,i)perylene	9/48	780.0	196M000101	NSV	-	-	190 U	18000 U	Yes	C	Benzo(g,h,i)perylene
Benzo(k)fluoranthene	9/48	870.0	196M000101	NSV	-	-	190 UJ	18000 UJ	Yes	C	Benzo(k)fluoranthene
Benzoic acid	8/48	64.0	196M000101	NSV	-	-	810 U	91000 U	Yes	C	Benzoic acid
Benzyl alcohol	0/48	-	-	NSV	-	-	190 UJ	18000 U	Yes	C	Benzyl alcohol
bis(2-Chloroethoxy)methane	0/48	-	-	NSV	-	-	190 U	18000 U	Yes	C	bis(2-Chloroethoxy)methane
bis(2-Chloroethyl)ether	0/48	-	-	NSV	-	-	190 UJ	18000 U	Yes	C	bis(2-Chloroethyl)ether
bis(2-Ethylhexyl)phthalate (BEHP)	6/48	1,600.0	SYCM000301	182	8.8	-	190 U	18000 U	Yes	A	bis(2-Ethylhexyl)phthalate (BEHP)
Butylbenzylphthalate	1/48	47.0	196M000103	NSV	-	-	190 U	18000 U	Yes	C	Butylbenzylphthalate
Carbazole	0/24	-	-	NSV	-	-	400 U	1600 U	Yes	C	Carbazole
Chrysene	15/48	970.0	196M000101	108	9.0	-	190 U	18000 U	Yes	A	Chrysene
Dibenz(a,h)anthracene	2/48	80.0	196M000103	6.22	12.9	-	190 U	18000 U	Yes	A	Dibenz(a,h)anthracene
Dibenzofuran	1/48	140.0	009M001401	NSV	-	-	190 U	18000 U	Yes	C	Dibenzofuran
Diethylphthalate	2/48	1,400.0	SYCM001401	NSV	-	-	190 U	18000 U	Yes	C	Diethylphthalate
Dimethyl phthalate	0/48	-	-	NSV	-	-	190 U	18000 U	Yes	C	Dimethyl phthalate
Di-n-butylphthalate	10/48	200.0	SYCM000801	NSV	-	-	190 U	18000 U	Yes	C	Di-n-butylphthalate
Di-n-octyl phthalate	1/48	110.0	SYCM002101	NSV	-	-	190 U	18000 U	Yes	C	Di-n-octyl phthalate
Fluoranthene	22/48	9,500.0	009M000401	113	84.1	-	190 UR	1500 U	Yes	A	Fluoranthene
Fluorene	1/48	160.0	009M001401	21.2	7.5	-	70 U	3600 U	Yes	A	Fluorene
Hexachlorobenzene	0/48	-	-	NSV	-	-	190 U	18000 U	Yes	C	Hexachlorobenzene
Hexachlorobutadiene	0/48	-	-	NSV	-	-	190 U	18000 U	Yes	C	Hexachlorobutadiene
Hexachlorocyclopentadiene	0/48	-	-	NSV	-	-	190 U	18000 U	Yes	C	Hexachlorocyclopentadiene
Hexachloroethane	0/48	-	-	NSV	-	-	190 U	18000 U	Yes	C	Hexachloroethane
Indeno(1,2,3-cd)pyrene	8/48	320.0	196M000101	NSV	-	-	190 U	18000 U	Yes	C	Indeno(1,2,3-cd)pyrene
Isophorone	0/48	-	-	NSV	-	-	190 U	18000 U	Yes	C	Isophorone

**Table 3-2**  
**Shipyard Creek SLERA**  
**Sediment COPC Screening Table**

Parameter	Frequency of Detection	Max Detect	Location of Maximum Conc.	Screening Value (SV)	Max. HQ	# of Samples Exceeding SBV	Range of Non-detects		Retained for Refinement?	Rationale	Parameter
							Min	Max			
Naphthalene	9/48	200.0	196M000101	34.6	5.8	-	190 U	18000 U	Yes	A	Naphthalene
Nitrobenzene	0/48	-	-	NSV	-	-	190 U	18000 U	Yes	C	Nitrobenzene
N-Nitrosodimethylamine	0/48	-	-	NSV	-	-	190 UJ	18000 U	Yes	C	N-Nitrosodimethylamine
N-Nitroso-di-n-propylamine	0/48	-	-	NSV	-	-	190 UJ	18000 U	Yes	C	N-Nitroso-di-n-propylamine
N-Nitrosodiphenylamine	0/48	-	-	NSV	-	-	190 UJ	18000 U	Yes	C	N-Nitrosodiphenylamine
Pentachlorophenol	0/48	-	-	NSV	-	-	190 U	18000 U	Yes	C	Pentachlorophenol
Phenanthrene	12/48	170.0	SYCM002001	86.7	2.0	-	190 U	18000 U	Yes	A	Phenanthrene
Phenol	0/48	-	-	NSV	-	-	190 UJ	18000 U	Yes	C	Phenol
Pyrene	18/48	6,400.0	009M000401	153	41.83	-	180 UR	1600 U	Yes	A	Pyrene
Total PAHs	22/48	78,900.0	009M000401	1684	46.85	-	-	-	Yes	A	Total PAHs
<b>Pesticides/PCBs (µg/kg)</b>											
4,4'-DDD	6/48	91.0	009M000501	3.3	27.58	-	4 U	72 U	Yes	A	4,4'-DDD
4,4'-DDE	12/48	150.0	009M000501	3.3	45.45	-	2 U	72 U	Yes	A	4,4'-DDE
4,4'-DDT	8/48	140.0	009M000501	3.3	42.42	-	4 U	72 U	Yes	A	4,4'-DDT
Aldrin	2/48	18.0	009M000401	NSV	-	-	2 UJ	38 U	Yes	C	Aldrin
alpha-BHC	0/48	-	-	NSV	-	-	2 U	38 U	Yes	C	alpha-BHC
alpha-Chlordane	3/48	29.0	009M001501	1.7	17.06	3	2 U	38 U	Yes	C	alpha-Chlordane
beta-BHC	1/48	7.0	009M000201	NSV	-	-	2 U	38 U	Yes	C	beta-BHC
Chlordane	0/24	-	-	1.7	-	-	40.1 U	160 U	Yes	C	Chlordane
delta-BHC	0/48	-	-	NSV	-	-	2 U	38 U	Yes	C	delta-BHC
Dieldrin	0/48	-	-	3.3	-	-	2 U	70 U	Yes	C	Dieldrin
Endosulfan I	0/48	-	-	NSV	-	-	2 U	38 U	Yes	C	Endosulfan I
Endosulfan II	0/48	-	-	NSV	-	-	4 U	72 U	Yes	C	Endosulfan II
Endosulfan sulfate	0/48	-	-	NSV	-	-	4 U	72 U	Yes	C	Endosulfan sulfate
Endrin	0/48	-	-	3.3	-	-	2 U	72 U	Yes	D	Endrin
Endrin aldehyde	0/48	-	-	3.3	-	-	2 U	72 U	Yes	D	Endrin aldehyde
Endrin ketone	0/48	-	-	3.3	-	-	4 U	72 U	Yes	D	Endrin ketone
gamma-BHC (Lindane)	0/48	-	-	3.3	-	-	2 UJ	38 U	Yes	D	gamma-BHC (Lindane)
gamma-Chlordane	3/48	26.0	009M001501	1.7	15.3	2	2 U	38 U	Yes	A	gamma-Chlordane
Heptachlor	0/48	-	-	NSV	-	-	2 U	38 U	Yes	C	Heptachlor
Heptachlor epoxide	0/48	-	-	NSV	-	-	2 U	38 U	Yes	C	Heptachlor epoxide
Methoxychlor	0/48	-	-	NSV	-	-	20 U	380 U	Yes	C	Methoxychlor
Toxaphene	0/48	-	-	NSV	-	-	80 U	2400 U	Yes	C	Toxaphene
Aroclor-1016	0/48	-	-	33	-	-	20 U	200 U	Yes	D	Aroclor-1016
Aroclor-1221	0/48	-	-	67	-	-	20 U	325 U	Yes	D	Aroclor-1221
Aroclor-1232	0/48	-	-	33	-	-	20 U	200 U	Yes	D	Aroclor-1232
Aroclor-1242	0/48	-	-	33	-	-	20 U	200 U	Yes	D	Aroclor-1242
Aroclor-1248	2/48	3,000.0	009M000401	33	90.91	-	20 U	200 U	Yes	A	Aroclor-1248
Aroclor-1254	4/48	690.0	009M000401	33	20.91	-	20 U	160 U	Yes	A	Aroclor-1254
Aroclor-1260	10/48	890.0	009M001501	33	26.97	-	20 U	160 U	Yes	A	Aroclor-1260
Total PCBs	38/48	4,860.0	009M000401	33	147.27	-	-	-	Yes	A	Total PCBs
<b>VOAs (µg/kg)</b>											
1,1,1-Trichloroethane	0/48	-	-	NSV	-	-	6 U	42 U	Yes	C	1,1,1-Trichloroethane
1,1,2,2-Tetrachloroethane	0/48	-	-	NSV	-	-	6 U	42 U	Yes	C	1,1,2,2-Tetrachloroethane

**Table 3-2**  
**Shipyard Creek SLERA**  
**Sediment COPC Screening Table**

Parameter	Frequency of Detection	Max Detect	Location of Maximum Conc.	Screening Value (SV)	Max. HQ	# of Samples Exceeding SBV	Range of Non-detects		Retained for Refinement?	Rationale	Parameter
							Min	Max			
1,1,2-Trichloroethane	0/48	-	-	NSV	-	-	6 U	42 U	Yes	C	1,1,2-Trichloroethane
1,1-Dichloroethane	0/48	-	-	NSV	-	-	6 U	42 U	Yes	C	1,1-Dichloroethane
1,1-Dichloroethene	0/48	-	-	NSV	-	-	6 U	42 U	Yes	C	1,1-Dichloroethene
1,2-Dichloroethane	0/48	-	-	NSV	-	-	6 U	42 U	Yes	C	1,2-Dichloroethane
1,2-Dichloroethene (total)	0/48	-	-	NSV	-	-	6 U	21 U	Yes	C	1,2-Dichloroethene (total)
1,2-Dichloropropane	0/48	-	-	NSV	-	-	6 U	42 U	Yes	C	1,2-Dichloropropane
2-Butanone (MEK)	14/48	96.0	SYCM016A01	NSV	-	-	10 U	110 U	Yes	C	2-Butanone (MEK)
2-Hexanone	0/48	-	-	NSV	-	-	6 U	42 U	Yes	C	2-Hexanone
4-Methyl-2-Pentanone (MIBK)	0/48	-	-	NSV	-	-	10 U	110 U	Yes	C	4-Methyl-2-Pentanone (MIBK)
Acetone	12/48	1,500.0	SYCM002101	NSV	-	-	10 U	390 U	Yes	C	Acetone
Benzene	0/48	-	-	NSV	-	-	6 U	42 U	Yes	C	Benzene
Bromodichloromethane	0/48	-	-	NSV	-	-	6 U	42 U	Yes	C	Bromodichloromethane
Bromoform	0/48	-	-	NSV	-	-	6 U	42 U	Yes	C	Bromoform
Bromomethane	0/48	-	-	NSV	-	-	6 U	42 U	Yes	C	Bromomethane
Carbon disulfide	27/48	150.0	009M000301	NSV	-	-	6 U	42 U	Yes	C	Carbon disulfide
Carbon tetrachloride	0/48	-	-	NSV	-	-	6 U	42 U	Yes	C	Carbon tetrachloride
Chlorobenzene	4/48	10,000.0	196M000202	NSV	-	-	6 U	42 U	Yes	C	Chlorobenzene
Chloroethane	0/48	-	-	NSV	-	-	6 U	42 U	Yes	C	Chloroethane
Chloroform	0/48	-	-	NSV	-	-	6 U	42 U	Yes	C	Chloroform
Chloromethane	0/48	-	-	NSV	-	-	6 U	42 U	Yes	C	Chloromethane
cis-1,3-Dichloropropene	0/48	-	-	NSV	-	-	6 U	42 U	Yes	C	cis-1,3-Dichloropropene
Dibromochloromethane	0/48	-	-	NSV	-	-	6 U	42 U	Yes	C	Dibromochloromethane
Ethylbenzene	0/48	-	-	NSV	-	-	6 U	42 U	Yes	C	Ethylbenzene
Methylene chloride	1/48	72.0	009M001401	NSV	-	-	6 U	69 U	Yes	C	Methylene chloride
Styrene	0/48	-	-	NSV	-	-	6 U	42 U	Yes	C	Styrene
Tetrachloroethene	0/48	-	-	NSV	-	-	6 U	42 U	Yes	C	Tetrachloroethene
Tetrahydrofuran	0/48	-	-	NSV	-	-	29 U	110 U	Yes	C	Tetrahydrofuran
Toluene	1/48	4.7	009M000701	NSV	-	-	6 U	42 U	Yes	C	Toluene
trans-1,3-Dichloropropene	0/48	-	-	NSV	-	-	6 U	42 U	Yes	C	trans-1,3-Dichloropropene
Trichloroethene	0/48	-	-	NSV	-	-	6 U	42 U	Yes	C	Trichloroethene
Trichlorofluoromethane	0/48	-	-	NSV	-	-	6 U	21 U	Yes	C	Trichlorofluoromethane

**Table 3-2**  
**Shipyard Creek SLERA**  
**Sediment COPC Screening Table**

Parameter	Frequency of Detection	Max Detect	Location of Maximum Conc.	Screening Value (SV)	Max. HQ	# of Samples Exceeding SBV	Range of Non-detects		Retained for Refinement?	Rationale	Parameter
							Min	Max			
Vinyl acetate	0/48	-	-	NSV	-	-	10 U	83 U	Yes	C	Vinyl acetate
Vinyl chloride	0/48	-	-	NSV	-	-	6 U	42 U	Yes	C	Vinyl chloride
Xylene (Total)	0/48	-	-	NSV	-	-	6 U	42 U	Yes	C	Xylene (Total)

Notes:

NSV  
SV

No screening value available.

Screening Value. Sediment screening values for this SLERA were taken from:

USEPA. 2001. Supplemental Guidance to RAGS: Region 4 Bulletins, Ecological Risk Assessment. Originally published in November 1995.

Website version updated November 30, 2001: <http://www.epa.gov/region4/waste/ots/ecobul.htm>

- Indicates that this column is not applicable to this contaminant.

Rationale for retaining COPCs

- A Maximum detected concentration is greater than Region 4 SV.
- B Maximum detected concentration is less than Region 4 SV.
- C No EPA screening value available for comparison.
- D Minimum detection limit is greater than the screening value.

**Table 3-3**  
**Shipyard Creek SLERA**  
**Sediment COPC Summary Table**

Inorganics		Pesticides and PCBs		SVOCs		VOCs	
Detected	Non-Detected	Detected	Non-Detected	Detected	Non-Detected	Detected	Non-Detected
Arsenic		4,4'-DDD	Chlordane	2-Methylnaphthalene			
Cadmium		4,4'-DDE	Dieldrin	Acenaphthene			
Chromium		4,4'-DDT	Endrin	Acenaphthylene			
Copper		alpha-Chlordane	Endrin aldehyde	Anthracene			
Lead		gamma-Chlordane	Endrin ketone	Benz(a)anthracene			
Mercury		Aroclor-1248	gamma-BHC (Lindane)	Benzo(a)pyrene			
Nickel		Aroclor-1254	Aroclor-1016	bis(2-Ethylhexyl)phthalate (BEHP)			
Zinc		Aroclor-1260	Aroclor-1221	Chrysene			
Total PCBs			Aroclor-1232	Dibenz(a,h)anthracene			
			Aroclor-1242	Fluoranthene			
				Fluorene			
				Naphthalene			
				Phenanthrene			
				Pyrene			
				Total PAHs			
Constituents with No Screening Values							
Detected	Non-Detected	Detected	Non-Detected	Detected	Non-Detected	Detected	Non-Detected
Aluminum	Monobutyltin	Aldrin	alpha-BHC	1,2-Dichlorobenzene	1,2,4-Trichlorobenzene	2-Butanone (MEK)	1,1,1-Trichloroethane
Barium	Dibutyltin	beta-BHC	delta-BHC	1,2-Dichlorobenzene	2,2'-oxybis(1-Chloropropane)	Acetone	1,1,2,2-Tetrachloroethane
Beryllium	Tributyltin	Endosulfan I	1,4-Dichlorobenzene	2,4,5-Trichlorophenol	Carbon disulfide	1,1,2-Trichloroethane	
Calcium	Tetrabutyltin	Endosulfan II	4-Methylphenol (p-Cresol)	2,4,6-Trichlorophenol	Chlorobenzene	1,1-Dichloroethane	
Cobalt		Endosulfan sulfate	Benzo(b)fluoranthene	2,4-Dichlorophenol	Methylene chloride	1,1-Dichloroethene	
Iron		Heptachlor	Benzo(g,h,i)perylene	2,4-Dimethylphenol	Toluene	1,2-Dichloroethane	
Magnesium		Heptachlor epoxide	Benzo(k)fluoranthene	2,4-Dinitrophenol		1,2-Dichloroethene (total)	
Manganese		Methoxychlor	Benzoic acid	2,4-Dinitrotoluene		1,2-Dichloropropane	
Potassium		Toxaphene	Butylbenzylphthalate	2,6-Dinitrotoluene		2-Hexanone	
Selenium			Dibenzofuran	2-Chloronaphthalene		4-Methyl-2-Pentanone (MIBK)	
Sodium			Diethylphthalate	2-Chlorophenol		Benzene	
Thallium			Di-n-butylphthalate	2-Methyl-4,6-Dinitrophenol		Bromodichloromethane	
Tin			Di-n-octyl phthalate	2-Methylphenol (o-Cresol)		Bromoform	
Vanadium			Indeno(1,2,3-cd)pyrene	2-Nitroaniline		Bromomethane	
				2-Nitrophenol		Carbon tetrachloride	
				3,3'-Dichlorobenzidine		Chloroethane	
				3-Nitroaniline		Chloroform	
				4-Bromophenyl-phenylether		Chloromethane	
				4-Chloro-3-methylphenol		cis-1,3-Dichloropropene	
				4-Chloroaniline		Dibromochloromethane	
				4-Chlorophenylphenylether		Ethylbenzene	
				4-Nitroaniline		Styrene	
				4-Nitrophenol		Tetrachloroethene	
				Aniline		Tetrahydrofuran	
				Benzidine		trans-1,3-Dichloropropene	
				Benzyl alcohol		Trichloroethene	
				bis(2-Chloroethoxy)methane		Trichlorofluoromethane	
				bis(2-Chloroethyl)ether		Vinyl acetate	
				Carbazole		Vinyl chloride	
				Dimethyl phthalate		Xylene (Total)	
				Hexachlorobenzene			
				Hexachlorobutadiene			
				Hexachlorocyclopentadiene			
				Hexachloroethane			
				Isophorone			
				Nitrobenzene			
				N-Nitrosodimethylamine			
				N-Nitroso-di-n-propylamine			
				N-Nitrosodiphenylamine			
				Pentachlorophenol			
				Phenol			

**Shipyard Creek**  
**Sediment Mean ERM Quotients**

SAMPLE ID	UNITS	RESULT	VQUAL	PARAMETER	ERL	ERM	ERM QUOTIENT
SYCM000101	MG/KG	13.10		Arsenic (As)	8.20	70.00	0.19
SYCM000101	MG/KG	1.00	J	Cadmium (Cd)	1.20	9.60	0.10
SYCM000101	MG/KG	132.00		Chromium (Cr)	81.00	370.00	0.36
SYCM000101	MG/KG	20.10		Copper (Cu)	34.00	270.00	0.07
SYCM000101	MG/KG	22.90		Lead (Pb)	46.70	218.00	0.11
SYCM000101	MG/KG	0.07	U	Mercury (Hg)	0.15	0.71	0.10
SYCM000101	MG/KG	27.80		Nickel (Ni)	20.90	51.60	0.54
SYCM000101	MG/KG	0.36	U	Silver (Ag)	1.00	3.70	0.10
SYCM000101	MG/KG	115.00		Zinc (Zn)	150.00	410.00	0.28
SYCM000101	UG/KG	7.69	U	4,4'-DDE	2.20	27.00	0.28
SYCM000101	UG/KG	7.69	U	4,4'-DDT	1.58	46.10	0.17
SYCM000101	UG/KG	308.70	U	Total PCBs	22.70	180.00	1.72
SYCM000101	UG/KG	790.00	U	2-Methylnaphthalene	70.00	670.00	1.18
SYCM000101	UG/KG	790.00	U	Acenaphthene	16.00	500.00	1.58
SYCM000101	UG/KG	790.00	U	Acenaphthylene	44.00	640.00	1.23
SYCM000101	UG/KG	790.00	U	Anthracene	85.30	1100.00	0.72
SYCM000101	UG/KG	790.00	U	Benzo(a)anthracene	261.00	1600.00	0.49
SYCM000101	UG/KG	790.00	U	Benzo(a)pyrene	430.00	1600.00	0.49
SYCM000101	UG/KG	790.00	U	Chrysene	384.00	2800.00	0.28
SYCM000101	UG/KG	790.00	U	Dibenz(a,h)anthracene	63.40	260.00	3.04
SYCM000101	UG/KG	790.00	U	Fluoranthene	600.00	5100.00	0.15
SYCM000101	UG/KG	790.00	U	Fluorene	19.00	540.00	1.46
SYCM000101	UG/KG	790.00	U	Naphthalene	160.00	2100.00	0.38
SYCM000101	UG/KG	790.00	U	Phenanthrene	240.00	1500.00	0.53
SYCM000101	UG/KG	790.00	U	Pyrene	665.00	2600.00	0.30
ERM Quotient Sum							15.85
SYCM000101				Mean ERM Quotient			0.63
SYCM000101				Mean ERM Quotient without ND			0.07
SYCM000201	MG/KG	12.90		Arsenic (As)	8.20	70.00	0.18
SYCM000201	MG/KG	0.77	J	Cadmium (Cd)	1.20	9.60	0.08
SYCM000201	MG/KG	97.70		Chromium (Cr)	81.00	370.00	0.26
SYCM000201	MG/KG	18.60		Copper (Cu)	34.00	270.00	0.07
SYCM000201	MG/KG	18.00		Lead (Pb)	46.70	218.00	0.08
SYCM000201	MG/KG	0.06	U	Mercury (Hg)	0.15	0.71	0.08
SYCM000201	MG/KG	25.40		Nickel (Ni)	20.90	51.60	0.49
SYCM000201	MG/KG	0.44	J	Silver (Ag)	1.00	3.70	0.12
SYCM000201	MG/KG	89.30		Zinc (Zn)	150.00	410.00	0.22
SYCM000201	UG/KG	7.38	U	4,4'-DDE	2.20	27.00	0.27
SYCM000201	UG/KG	7.38	U	4,4'-DDT	1.58	46.10	0.16
SYCM000201	UG/KG	296.40	U	Total PCBs	22.70	180.00	1.65
SYCM000201	UG/KG	730.00	U	2-Methylnaphthalene	70.00	670.00	1.09
SYCM000201	UG/KG	730.00	U	Acenaphthene	16.00	500.00	1.46
SYCM000201	UG/KG	730.00	U	Acenaphthylene	44.00	640.00	1.14
SYCM000201	UG/KG	730.00	U	Anthracene	85.30	1100.00	0.66
SYCM000201	UG/KG	730.00	U	Benzo(a)anthracene	261.00	1600.00	0.46
SYCM000201	UG/KG	730.00	U	Benzo(a)pyrene	430.00	1600.00	0.46
SYCM000201	UG/KG	730.00	U	Chrysene	384.00	2800.00	0.26
SYCM000201	UG/KG	730.00	U	Dibenz(a,h)anthracene	63.40	260.00	2.81
SYCM000201	UG/KG	730.00	U	Fluoranthene	600.00	5100.00	0.14
SYCM000201	UG/KG	730.00	U	Fluorene	19.00	540.00	1.35
SYCM000201	UG/KG	730.00	U	Naphthalene	160.00	2100.00	0.35
SYCM000201	UG/KG	730.00	U	Phenanthrene	240.00	1500.00	0.49
SYCM000201	UG/KG	730.00	U	Pyrene	665.00	2600.00	0.28
ERM Quotient Sum							14.62
SYCM000201				Mean ERM Quotient			0.58
SYCM000201				Mean ERM Quotient without ND			0.06

**Shipyard Creek**  
**Sediment Mean ERM Quotients**

SAMPLE ID	UNITS	RESULT	VQUAL	PARAMETER	ERL	ERM	ERM QUOTIENT
SYCM000301	MG/KG	13.20		Arsenic (As)	8.20	70.00	0.19
SYCM000301	MG/KG	0.97	J	Cadmium (Cd)	1.20	9.60	0.10
SYCM000301	MG/KG	53.70		Chromium (Cr)	81.00	370.00	0.15
SYCM000301	MG/KG	14.00		Copper (Cu)	34.00	270.00	0.05
SYCM000301	MG/KG	11.50		Lead (Pb)	46.70	218.00	0.05
SYCM000301	MG/KG	0.08	U	Mercury (Hg)	0.15	0.71	0.11
SYCM000301	MG/KG	21.50		Nickel (Ni)	20.90	51.60	0.42
SYCM000301	MG/KG	0.49	J	Silver (Ag)	1.00	3.70	0.13
SYCM000301	MG/KG	67.00		Zinc (Zn)	150.00	410.00	0.16
SYCM000301	UG/KG	8.03	U	4,4'-DDE	2.20	27.00	0.30
SYCM000301	UG/KG	8.03	U	4,4'-DDT	1.58	46.10	0.17
SYCM000301	UG/KG	322.40	U	Total PCBs	22.70	180.00	1.79
SYCM000301	UG/KG	800.00	U	2-Methylnaphthalene	70.00	670.00	1.19
SYCM000301	UG/KG	800.00	U	Acenaphthene	16.00	500.00	1.60
SYCM000301	UG/KG	800.00	U	Acenaphthylene	44.00	640.00	1.25
SYCM000301	UG/KG	800.00	U	Anthracene	85.30	1100.00	0.73
SYCM000301	UG/KG	800.00	U	Benz(a)anthracene	261.00	1600.00	0.50
SYCM000301	UG/KG	800.00	U	Benz(a)pyrene	430.00	1600.00	0.50
SYCM000301	UG/KG	800.00	U	Chrysene	384.00	2800.00	0.29
SYCM000301	UG/KG	800.00	U	Dibenz(a,h)anthracene	63.40	260.00	3.08
SYCM000301	UG/KG	800.00	U	Fluoranthene	600.00	5100.00	0.16
SYCM000301	UG/KG	800.00	U	Fluorene	19.00	540.00	1.48
SYCM000301	UG/KG	800.00	U	Naphthalene	160.00	2100.00	0.38
SYCM000301	UG/KG	800.00	U	Phenanthrene	240.00	1500.00	0.53
SYCM000301	UG/KG	800.00	U	Pyrene	665.00	2600.00	0.31
ERM Quotient Sum							15.62
SYCM000301							0.62
SYCM000301							0.05
SYCM000401	MG/KG	9.40		Arsenic (As)	8.20	70.00	0.13
SYCM000401	MG/KG	0.66	J	Cadmium (Cd)	1.20	9.60	0.07
SYCM000401	MG/KG	79.40		Chromium (Cr)	81.00	370.00	0.21
SYCM000401	MG/KG	10.70		Copper (Cu)	34.00	270.00	0.04
SYCM000401	MG/KG	10.90		Lead (Pb)	46.70	218.00	0.05
SYCM000401	MG/KG	0.05	U	Mercury (Hg)	0.15	0.71	0.07
SYCM000401	MG/KG	22.00		Nickel (Ni)	20.90	51.60	0.43
SYCM000401	MG/KG	0.38	J	Silver (Ag)	1.00	3.70	0.10
SYCM000401	MG/KG	67.50		Zinc (Zn)	150.00	410.00	0.16
SYCM000401	UG/KG	5.37	U	4,4'-DDE	2.20	27.00	0.20
SYCM000401	UG/KG	5.37	U	4,4'-DDT	1.58	46.10	0.12
SYCM000401	UG/KG	215.60	U	Total PCBs	22.70	180.00	1.20
SYCM000401	UG/KG	530.00	U	2-Methylnaphthalene	70.00	670.00	0.79
SYCM000401	UG/KG	530.00	U	Acenaphthene	16.00	500.00	1.06
SYCM000401	UG/KG	530.00	U	Acenaphthylene	44.00	640.00	0.83
SYCM000401	UG/KG	530.00	U	Anthracene	85.30	1100.00	0.48
SYCM000401	UG/KG	530.00	U	Benz(a)anthracene	261.00	1600.00	0.33
SYCM000401	UG/KG	530.00	U	Benz(a)pyrene	430.00	1600.00	0.33
SYCM000401	UG/KG	530.00	U	Chrysene	384.00	2800.00	0.19
SYCM000401	UG/KG	530.00	U	Dibenz(a,h)anthracene	63.40	260.00	2.04
SYCM000401	UG/KG	530.00	U	Fluoranthene	600.00	5100.00	0.10
SYCM000401	UG/KG	530.00	U	Fluorene	19.00	540.00	0.98
SYCM000401	UG/KG	530.00	U	Naphthalene	160.00	2100.00	0.25
SYCM000401	UG/KG	530.00	U	Phenanthrene	240.00	1500.00	0.35
SYCM000401	UG/KG	530.00	U	Pyrene	665.00	2600.00	0.20
ERM Quotient Sum							10.73
SYCM000401							0.43
SYCM000401							0.05

**Shipyard Creek**  
**Sediment Mean ERM Quotients**

SAMPLE ID	UNITS	RESULT	VQUAL	PARAMETER	ERL	ERM	ERM QUOTIENT
SYCM000501	MG/KG	12.80		Arsenic (As)	8.20	70.00	0.18
SYCM000501	MG/KG	0.80	J	Cadmium (Cd)	1.20	9.60	0.08
SYCM000501	MG/KG	63.40		Chromium (Cr)	81.00	370.00	0.17
SYCM000501	MG/KG	11.90		Copper (Cu)	34.00	270.00	0.04
SYCM000501	MG/KG	10.00		Lead (Pb)	46.70	218.00	0.05
SYCM000501	MG/KG	0.06	U	Mercury (Hg)	0.15	0.71	0.08
SYCM000501	MG/KG	22.30		Nickel (Ni)	20.90	51.60	0.43
SYCM000501	MG/KG	0.29	U	Silver (Ag)	1.00	3.70	0.08
SYCM000501	MG/KG	56.50		Zinc (Zn)	150.00	410.00	0.14
SYCM000501	UG/KG	6.33	U	4,4'-DDE	2.20	27.00	0.23
SYCM000501	UG/KG	6.33	U	4,4'-DDT	1.58	46.10	0.14
SYCM000501	UG/KG	254.40	U	Total PCBs	22.70	180.00	1.41
SYCM000501	UG/KG	630.00	U	2-Methylnaphthalene	70.00	670.00	0.94
SYCM000501	UG/KG	630.00	U	Acenaphthene	16.00	500.00	1.26
SYCM000501	UG/KG	630.00	U	Acenaphthylene	44.00	640.00	0.98
SYCM000501	UG/KG	630.00	U	Anthracene	85.30	1100.00	0.57
SYCM000501	UG/KG	630.00	U	Benz(a)anthracene	261.00	1600.00	0.39
SYCM000501	UG/KG	630.00	U	Benz(a)pyrene	430.00	1600.00	0.39
SYCM000501	UG/KG	630.00	U	Chrysene	384.00	2800.00	0.23
SYCM000501	UG/KG	630.00	U	Dibenz(a,h)anthracene	63.40	260.00	0.24
SYCM000501	UG/KG	630.00	U	Fluoranthene	600.00	5100.00	0.12
SYCM000501	UG/KG	630.00	U	Fluorene	19.00	540.00	0.17
SYCM000501	UG/KG	630.00	U	Naphthalene	160.00	2100.00	0.30
SYCM000501	UG/KG	630.00	U	Phenanthrene	240.00	1500.00	0.42
SYCM000501	UG/KG	630.00	U	Pyrene	665.00	2600.00	0.24
ERM Quotient Sum							12.49
SYCM000501				Mean ERM Quotient			0.50
SYCM000501				Mean ERM Quotient without ND			0.04
SYCM000601	MG/KG	9.10		Arsenic (As)	8.20	70.00	0.13
SYCM000601	MG/KG	0.64	J	Cadmium (Cd)	1.20	9.60	0.07
SYCM000601	MG/KG	50.00		Chromium (Cr)	81.00	370.00	0.14
SYCM000601	MG/KG	13.50		Copper (Cu)	34.00	270.00	0.05
SYCM000601	MG/KG	3.80		Lead (Pb)	46.70	218.00	0.02
SYCM000601	MG/KG	0.05	U	Mercury (Hg)	0.15	0.71	0.07
SYCM000601	MG/KG	20.90		Nickel (Ni)	20.90	51.60	0.41
SYCM000601	MG/KG	0.22	U	Silver (Ag)	1.00	3.70	0.06
SYCM000601	MG/KG	41.40		Zinc (Zn)	150.00	410.00	0.10
SYCM000601	UG/KG	4.73	U	4,4'-DDE	2.20	27.00	0.18
SYCM000601	UG/KG	4.73	U	4,4'-DDT	1.58	46.10	0.10
SYCM000601	UG/KG	189.90	U	Total PCBs	22.70	180.00	1.06
SYCM000601	UG/KG	470.00	UJ	2-Methylnaphthalene	70.00	670.00	0.70
SYCM000601	UG/KG	470.00	UJ	Acenaphthene	16.00	500.00	0.94
SYCM000601	UG/KG	470.00	UJ	Acenaphthylene	44.00	640.00	0.73
SYCM000601	UG/KG	470.00	UJ	Anthracene	85.30	1100.00	0.43
SYCM000601	UG/KG	470.00	UJ	Benz(a)anthracene	261.00	1600.00	0.29
SYCM000601	UG/KG	470.00	UJ	Benz(a)pyrene	430.00	1600.00	0.29
SYCM000601	UG/KG	470.00	UJ	Chrysene	384.00	2800.00	0.17
SYCM000601	UG/KG	470.00	UJ	Dibenz(a,h)anthracene	63.40	260.00	1.81
SYCM000601	UG/KG	470.00	UJ	Fluoranthene	600.00	5100.00	0.09
SYCM000601	UG/KG	470.00	UJ	Fluorene	19.00	540.00	0.87
SYCM000601	UG/KG	470.00	UJ	Naphthalene	160.00	2100.00	0.22
SYCM000601	UG/KG	470.00	UJ	Phenanthrene	240.00	1500.00	0.31
SYCM000601	UG/KG	470.00	UJ	Pyrene	665.00	2600.00	0.18
ERM Quotient Sum							9.41
SYCM000601				Mean ERM Quotient			0.38
SYCM000601				Mean ERM Quotient without ND			0.04

**Shipyard Creek**  
**Sediment Mean ERM Quotients**

SAMPLE ID	UNITS	RESULT	VQUAL	PARAMETER	ERL	ERM	ERM QUOTIENT
SYCM000701	MG/KG	12.80		Arsenic (As)	8.20	70.00	0.18
SYCM000701	MG/KG	0.68	J	Cadmium (Cd)	1.20	9.60	0.07
SYCM000701	MG/KG	76.50		Chromium (Cr)	81.00	370.00	0.21
SYCM000701	MG/KG	23.40		Copper (Cu)	34.00	270.00	0.09
SYCM000701	MG/KG	23.00		Lead (Pb)	46.70	218.00	0.11
SYCM000701	MG/KG	0.08	U	Mercury (Hg)	0.15	0.71	0.11
SYCM000701	MG/KG	24.30		Nickel (Ni)	20.90	51.60	0.47
SYCM000701	MG/KG	0.38	U	Silver (Ag)	1.00	3.70	0.10
SYCM000701	MG/KG	76.40		Zinc (Zn)	150.00	410.00	0.19
SYCM000701	UG/KG	8.63	U	4,4'-DDE	2.20	27.00	0.32
SYCM000701	UG/KG	8.63	U	4,4'-DDT	1.58	46.10	0.19
SYCM000701	UG/KG	346.40	U	Total PCBs	22.70	180.00	1.92
SYCM000701	UG/KG	870.00	U	2-Methylnaphthalene	70.00	670.00	1.30
SYCM000701	UG/KG	870.00	U	Acenaphthene	16.00	500.00	1.74
SYCM000701	UG/KG	870.00	U	Acenaphthylene	44.00	640.00	1.36
SYCM000701	UG/KG	870.00	U	Anthracene	85.30	1100.00	0.79
SYCM000701	UG/KG	110.00	J	Benz(a)anthracene	261.00	1600.00	0.07
SYCM000701	UG/KG	870.00	U	Benz(a)pyrene	430.00	1600.00	0.54
SYCM000701	UG/KG	170.00	J	Chrysene	384.00	2800.00	0.06
SYCM000701	UG/KG	870.00	U	Dibenz(a,h)anthracene	63.40	260.00	3.35
SYCM000701	UG/KG	99.00	J	Fluoranthene	600.00	5100.00	0.02
SYCM000701	UG/KG	870.00	U	Fluorene	19.00	540.00	1.61
SYCM000701	UG/KG	870.00	U	Naphthalene	160.00	2100.00	0.41
SYCM000701	UG/KG	870.00	U	Phenanthrene	240.00	1500.00	0.58
SYCM000701	UG/KG	100.00	J	Pyrene	665.00	2600.00	0.04
ERM Quotient Sum							15.83
SYCM000701							0.63
SYCM000701							0.06
SYCM000801	MG/KG	21.60		Arsenic (As)	8.20	70.00	0.31
SYCM000801	MG/KG	0.84	J	Cadmium (Cd)	1.20	9.60	0.09
SYCM000801	MG/KG	63.20	J	Chromium (Cr)	81.00	370.00	0.17
SYCM000801	MG/KG	20.80	J	Copper (Cu)	34.00	270.00	0.08
SYCM000801	MG/KG	27.70	J	Lead (Pb)	46.70	218.00	0.13
SYCM000801	MG/KG	0.17	U	Mercury (Hg)	0.15	0.71	0.24
SYCM000801	MG/KG	13.70	J	Nickel (Ni)	20.90	51.60	0.27
SYCM000801	MG/KG	2.50	U	Silver (Ag)	1.00	3.70	0.68
SYCM000801	MG/KG	99.30	J	Zinc (Zn)	150.00	410.00	0.24
SYCM000801	UG/KG	16.00	U	4,4'-DDE	2.20	27.00	0.59
SYCM000801	UG/KG	16.00	U	4,4'-DDT	1.58	46.10	0.35
SYCM000801	UG/KG	642.50	U	Total PCBs	22.70	180.00	3.57
SYCM000801	UG/KG	1600.00	U	2-Methylnaphthalene	70.00	670.00	2.39
SYCM000801	UG/KG	1600.00	U	Acenaphthene	16.00	500.00	3.20
SYCM000801	UG/KG	1600.00	U	Acenaphthylene	44.00	640.00	2.50
SYCM000801	UG/KG	1600.00	U	Anthracene	85.30	1100.00	1.45
SYCM000801	UG/KG	1600.00	U	Benz(a)anthracene	261.00	1600.00	1.00
SYCM000801	UG/KG	1600.00	U	Benz(a)pyrene	430.00	1600.00	1.00
SYCM000801	UG/KG	1600.00	U	Chrysene	384.00	2800.00	0.57
SYCM000801	UG/KG	1600.00	U	Dibenz(a,h)anthracene	63.40	260.00	6.15
SYCM000801	UG/KG	210.00	J	Fluoranthene	600.00	5100.00	0.04
SYCM000801	UG/KG	1600.00	U	Fluorene	19.00	540.00	2.96
SYCM000801	UG/KG	1600.00	U	Naphthalene	160.00	2100.00	0.76
SYCM000801	UG/KG	1600.00	U	Phenanthrene	240.00	1500.00	1.07
SYCM000801	UG/KG	1600.00	U	Pyrene	665.00	2600.00	0.62
ERM Quotient Sum							30.42
SYCM000801							1.22
SYCM000801							0.05

**Shipyard Creek**  
**Sediment Mean ERM Quotients**

SAMPLE ID	UNITS	RESULT	VQUAL	PARAMETER	ERL	ERM	ERM QUOTIENT
SYCM000901	MG/KG	13.90		Arsenic (As)	8.20	70.00	0.20
SYCM000901	MG/KG	0.76	J	Cadmium (Cd)	1.20	9.60	0.08
SYCM000901	MG/KG	60.50	J	Chromium (Cr)	81.00	370.00	0.16
SYCM000901	MG/KG	41.90	J	Copper (Cu)	34.00	270.00	0.16
SYCM000901	MG/KG	28.10	J	Lead (Pb)	46.70	218.00	0.13
SYCM000901	MG/KG	0.07	U	Mercury (Hg)	0.15	0.71	0.10
SYCM000901	MG/KG	10.20	J	Nickel (Ni)	20.90	51.60	0.20
SYCM000901	MG/KG	0.91	U	Silver (Ag)	1.00	3.70	0.25
SYCM000901	MG/KG	94.90	J	Zinc (Zn)	150.00	410.00	0.23
SYCM000901	UG/KG	6.56	U	4,4'-DDE	2.20	27.00	0.24
SYCM000901	UG/KG	6.56	U	4,4'-DDT	1.58	46.10	0.14
SYCM000901	UG/KG	263.30	U	Total PCBs	22.70	180.00	1.46
SYCM000901	UG/KG	660.00	U	2-Methylnaphthalene	70.00	670.00	0.99
SYCM000901	UG/KG	660.00	U	Acenaphthene	16.00	500.00	1.32
SYCM000901	UG/KG	660.00	U	Acenaphthylene	44.00	640.00	1.03
SYCM000901	UG/KG	660.00	U	Anthracene	85.30	1100.00	0.60
SYCM000901	UG/KG	100.00	J	Benz(a)anthracene	261.00	1600.00	0.06
SYCM000901	UG/KG	110.00	J	Benz(a)pyrene	430.00	1600.00	0.07
SYCM000901	UG/KG	120.00	J	Chrysene	384.00	2800.00	0.04
SYCM000901	UG/KG	660.00	U	Dibenz(a,h)anthracene	63.40	260.00	2.54
SYCM000901	UG/KG	190.00	J	Fluoranthene	600.00	5100.00	0.04
SYCM000901	UG/KG	660.00	U	Fluorene	19.00	540.00	1.22
SYCM000901	UG/KG	660.00	U	Naphthalene	160.00	2100.00	0.31
SYCM000901	UG/KG	74.00	J	Phenanthrene	240.00	1500.00	0.05
SYCM000901	UG/KG	180.00	J	Pyrene	665.00	2600.00	0.07
ERM Quotient Sum							11.69
SYCM000901							0.47
SYCM000901							0.06

SYCM001001	MG/KG	13.40		Arsenic (As)	8.20	70.00	0.19
SYCM001001	MG/KG	0.73	J	Cadmium (Cd)	1.20	9.60	0.08
SYCM001001	MG/KG	73.10		Chromium (Cr)	81.00	370.00	0.20
SYCM001001	MG/KG	21.00		Copper (Cu)	34.00	270.00	0.08
SYCM001001	MG/KG	21.50		Lead (Pb)	46.70	218.00	0.10
SYCM001001	MG/KG	0.07	U	Mercury (Hg)	0.15	0.71	0.10
SYCM001001	MG/KG	20.00		Nickel (Ni)	20.90	51.60	0.39
SYCM001001	MG/KG	1.10	J	Silver (Ag)	1.00	3.70	0.30
SYCM001001	MG/KG	87.40		Zinc (Zn)	150.00	410.00	0.21
SYCM001001	UG/KG	7.71	U	4,4'-DDE	2.20	27.00	0.29
SYCM001001	UG/KG	7.71	U	4,4'-DDT	1.58	46.10	0.17
SYCM001001	UG/KG	309.30	U	Total PCBs	22.70	180.00	1.72
SYCM001001	UG/KG	770.00	U	2-Methylnaphthalene	70.00	670.00	1.15
SYCM001001	UG/KG	770.00	U	Acenaphthene	16.00	500.00	1.54
SYCM001001	UG/KG	770.00	U	Acenaphthylene	44.00	640.00	1.20
SYCM001001	UG/KG	770.00	U	Anthracene	85.30	1100.00	0.70
SYCM001001	UG/KG	770.00	U	Benz(a)anthracene	261.00	1600.00	0.48
SYCM001001	UG/KG	770.00	U	Benz(a)pyrene	430.00	1600.00	0.48
SYCM001001	UG/KG	770.00	U	Chrysene	384.00	2800.00	0.28
SYCM001001	UG/KG	770.00	U	Dibenz(a,h)anthracene	63.40	260.00	2.96
SYCM001001	UG/KG	770.00	U	Fluoranthene	600.00	5100.00	0.15
SYCM001001	UG/KG	770.00	U	Fluorene	19.00	540.00	1.43
SYCM001001	UG/KG	770.00	U	Naphthalene	160.00	2100.00	0.37
SYCM001001	UG/KG	770.00	U	Phenanthrene	240.00	1500.00	0.51
SYCM001001	UG/KG	770.00	U	Pyrene	665.00	2600.00	0.30
ERM Quotient Sum							15.35
SYCM001001							0.61
SYCM001001							0.06

**Shipyard Creek**  
**Sediment Mean ERM Quotients**

SAMPLE ID	UNITS	RESULT	VQUAL	PARAMETER	ERL	ERM	ERM QUOTIENT
SYCM001101	MG/KG	6.90		Arsenic (As)	8.20	70.00	0.10
SYCM001101	MG/KG	0.15	J	Cadmium (Cd)	1.20	9.60	0.02
SYCM001101	MG/KG	26.00		Chromium (Cr)	81.00	370.00	0.07
SYCM001101	MG/KG	11.40		Copper (Cu)	34.00	270.00	0.04
SYCM001101	MG/KG	10.60		Lead (Pb)	46.70	218.00	0.05
SYCM001101	MG/KG	0.05	U	Mercury (Hg)	0.15	0.71	0.07
SYCM001101	MG/KG	6.50	J	Nickel (Ni)	20.90	51.60	0.13
SYCM001101	MG/KG	0.70	J	Silver (Ag)	1.00	3.70	0.19
SYCM001101	MG/KG	39.20		Zinc (Zn)	150.00	410.00	0.10
SYCM001101	UG/KG	5.46	U	4,4'-DDE	2.20	27.00	0.20
SYCM001101	UG/KG	5.46	U	4,4'-DDT	1.58	46.10	0.12
SYCM001101	UG/KG	219.30	U	Total PCBs	22.70	180.00	1.22
SYCM001101	UG/KG	550.00	U	2-Methylnaphthalene	70.00	670.00	0.82
SYCM001101	UG/KG	550.00	U	Acenaphthene	16.00	500.00	1.10
SYCM001101	UG/KG	550.00	U	Acenaphthylene	44.00	640.00	0.86
SYCM001101	UG/KG	550.00	U	Anthracene	85.30	1100.00	0.50
SYCM001101	UG/KG	550.00	U	Benzo(a)anthracene	261.00	1600.00	0.34
SYCM001101	UG/KG	550.00	U	Benzo(a)pyrene	430.00	1600.00	0.34
SYCM001101	UG/KG	550.00	U	Chrysene	384.00	2800.00	0.20
SYCM001101	UG/KG	550.00	U	Dibenz(a,h)anthracene	63.40	260.00	2.12
SYCM001101	UG/KG	550.00	U	Fluoranthene	600.00	5100.00	0.11
SYCM001101	UG/KG	550.00	U	Fluorene	19.00	540.00	1.02
SYCM001101	UG/KG	550.00	U	Naphthalene	160.00	2100.00	0.26
SYCM001101	UG/KG	550.00	U	Phenanthrene	240.00	1500.00	0.37
SYCM001101	UG/KG	550.00	U	Pyrene	665.00	2600.00	0.21
ERM Quotient Sum							10.54
SYCM001101				Mean ERM Quotient			0.42
SYCM001101				Mean ERM Quotient without ND			0.03
SYCM001201	MG/KG	8.10		Arsenic (As)	8.20	70.00	0.12
SYCM001201	MG/KG	0.56	J	Cadmium (Cd)	1.20	9.60	0.06
SYCM001201	MG/KG	59.20		Chromium (Cr)	81.00	370.00	0.16
SYCM001201	MG/KG	24.10		Copper (Cu)	34.00	270.00	0.09
SYCM001201	MG/KG	17.30		Lead (Pb)	46.70	218.00	0.08
SYCM001201	MG/KG	0.06	U	Mercury (Hg)	0.15	0.71	0.08
SYCM001201	MG/KG	16.50		Nickel (Ni)	20.90	51.60	0.32
SYCM001201	MG/KG	0.31	U	Silver (Ag)	1.00	3.70	0.08
SYCM001201	MG/KG	74.80		Zinc (Zn)	150.00	410.00	0.18
SYCM001201	UG/KG	6.49	U	4,4'-DDE	2.20	27.00	0.24
SYCM001201	UG/KG	6.49	U	4,4'-DDT	1.58	46.10	0.14
SYCM001201	UG/KG	260.70	U	Total PCBs	22.70	180.00	1.45
SYCM001201	UG/KG	650.00	U	2-Methylnaphthalene	70.00	670.00	0.97
SYCM001201	UG/KG	650.00	U	Acenaphthene	16.00	500.00	1.30
SYCM001201	UG/KG	650.00	U	Acenaphthylene	44.00	640.00	1.02
SYCM001201	UG/KG	650.00	U	Anthracene	85.30	1100.00	0.59
SYCM001201	UG/KG	650.00	U	Benzo(a)anthracene	261.00	1600.00	0.41
SYCM001201	UG/KG	650.00	U	Benzo(a)pyrene	430.00	1600.00	0.41
SYCM001201	UG/KG	650.00	U	Chrysene	384.00	2800.00	0.23
SYCM001201	UG/KG	650.00	U	Dibenz(a,h)anthracene	63.40	260.00	2.50
SYCM001201	UG/KG	650.00	U	Fluoranthene	600.00	5100.00	0.13
SYCM001201	UG/KG	650.00	U	Fluorene	19.00	540.00	1.20
SYCM001201	UG/KG	650.00	U	Naphthalene	160.00	2100.00	0.31
SYCM001201	UG/KG	650.00	U	Phenanthrene	240.00	1500.00	0.43
SYCM001201	UG/KG	650.00	U	Pyrene	665.00	2600.00	0.25
ERM Quotient Sum							12.75
SYCM001201				Mean ERM Quotient			0.51
SYCM001201				Mean ERM Quotient without ND			0.04

**Shipyard Creek**  
**Sediment Mean ERM Quotients**

SAMPLE ID	UNITS	RESULT	VQUAL	PARAMETER	ERL	ERM	ERM QUOTIENT
SYCM001301	MG/KG	7.30		Arsenic (As)	8.20	70.00	0.10
SYCM001301	MG/KG	0.28	J	Cadmium (Cd)	1.20	9.60	0.03
SYCM001301	MG/KG	104.00		Chromium (Cr)	81.00	370.00	0.28
SYCM001301	MG/KG	36.50		Copper (Cu)	34.00	270.00	0.14
SYCM001301	MG/KG	36.90		Lead (Pb)	46.70	218.00	0.17
SYCM001301	MG/KG	0.09		Mercury (Hg)	0.15	0.71	0.13
SYCM001301	MG/KG	19.90	J	Nickel (Ni)	20.90	51.60	0.39
SYCM001301	MG/KG	1.40	J	Silver (Ag)	1.00	3.70	0.38
SYCM001301	MG/KG	87.50		Zinc (Zn)	150.00	410.00	0.21
SYCM001301	UG/KG	9.02	U	4,4'-DDE	2.20	27.00	0.33
SYCM001301	UG/KG	9.02	U	4,4'-DDT	1.58	46.10	0.20
SYCM001301	UG/KG	362.10	U	Total PCBs	22.70	180.00	2.01
SYCM001301	UG/KG	890.00	U	2-Methylnaphthalene	70.00	670.00	1.33
SYCM001301	UG/KG	890.00	U	Acenaphthene	16.00	500.00	1.78
SYCM001301	UG/KG	890.00	U	Acenaphthylene	44.00	640.00	1.39
SYCM001301	UG/KG	890.00	U	Anthracene	85.30	1100.00	0.81
SYCM001301	UG/KG	890.00	U	Benzo(a)anthracene	261.00	1600.00	0.56
SYCM001301	UG/KG	890.00	U	Benzo(a)pyrene	430.00	1600.00	0.56
SYCM001301	UG/KG	890.00	U	Chrysene	384.00	2800.00	0.32
SYCM001301	UG/KG	890.00	U	Dibenz(a,h)anthracene	63.40	260.00	3.42
SYCM001301	UG/KG	890.00	U	Fluoranthene	600.00	5100.00	0.17
SYCM001301	UG/KG	890.00	U	Fluorene	19.00	540.00	1.65
SYCM001301	UG/KG	890.00	U	Naphthalene	160.00	2100.00	0.42
SYCM001301	UG/KG	890.00	U	Phenanthrene	240.00	1500.00	0.59
SYCM001301	UG/KG	890.00	U	Pyrene	665.00	2600.00	0.34
ERM Quotient Sum						17.71	
SYCM001301				Mean ERM Quotient		0.71	
SYCM001301				Mean ERM Quotient without ND		0.07	
SYCM001401	MG/KG	18.80		Arsenic (As)	8.20	70.00	0.27
SYCM001401	MG/KG	0.87	J	Cadmium (Cd)	1.20	9.60	0.09
SYCM001401	MG/KG	57.70	J	Chromium (Cr)	81.00	370.00	0.16
SYCM001401	MG/KG	24.40	J	Copper (Cu)	34.00	270.00	0.09
SYCM001401	MG/KG	27.00	J	Lead (Pb)	46.70	218.00	0.12
SYCM001401	MG/KG	0.14	U	Mercury (Hg)	0.15	0.71	0.20
SYCM001401	MG/KG	17.00	J	Nickel (Ni)	20.90	51.60	0.33
SYCM001401	MG/KG	2.30	U	Silver (Ag)	1.00	3.70	0.62
SYCM001401	MG/KG	102.00	J	Zinc (Zn)	150.00	410.00	0.25
SYCM001401	UG/KG	14.60	U	4,4'-DDE	2.20	27.00	0.54
SYCM001401	UG/KG	14.60	U	4,4'-DDT	1.58	46.10	0.32
SYCM001401	UG/KG	586.00	U	Total PCBs	22.70	180.00	3.26
SYCM001401	UG/KG	1400.00	U	2-Methylnaphthalene	70.00	670.00	2.09
SYCM001401	UG/KG	1400.00	U	Acenaphthene	16.00	500.00	2.80
SYCM001401	UG/KG	1400.00	U	Acenaphthylene	44.00	640.00	2.19
SYCM001401	UG/KG	1400.00	U	Anthracene	85.30	1100.00	1.27
SYCM001401	UG/KG	1400.00	U	Benzo(a)anthracene	261.00	1600.00	0.88
SYCM001401	UG/KG	1400.00	U	Benzo(a)pyrene	430.00	1600.00	0.88
SYCM001401	UG/KG	1400.00	U	Chrysene	384.00	2800.00	0.50
SYCM001401	UG/KG	1400.00	U	Dibenz(a,h)anthracene	63.40	260.00	5.38
SYCM001401	UG/KG	1400.00	U	Fluoranthene	600.00	5100.00	0.27
SYCM001401	UG/KG	1400.00	U	Fluorene	19.00	540.00	2.59
SYCM001401	UG/KG	1400.00	U	Naphthalene	160.00	2100.00	0.67
SYCM001401	UG/KG	1400.00	U	Phenanthrene	240.00	1500.00	0.93
SYCM001401	UG/KG	1400.00	U	Pyrene	665.00	2600.00	0.54
ERM Quotient Sum						27.23	
SYCM001401				Mean ERM Quotient		1.09	
SYCM001401				Mean ERM Quotient without ND		0.05	

**Shipyard Creek**  
**Sediment Mean ERM Quotients**

SAMPLE ID	UNITS	RESULT	VQUAL	PARAMETER	ERL	ERM	ERM QUOTIENT
SYCM001501	MG/KG	21.70		Arsenic (As)	9.20	70.00	0.31
SYCM001501	MG/KG	0.35	J	Cadmium (Cd)	1.20	9.60	0.04
SYCM001501	MG/KG	58.20		Chromium (Cr)	81.00	370.00	0.16
SYCM001501	MG/KG	17.30		Copper (Cu)	34.00	270.00	0.06
SYCM001501	MG/KG	20.90		Lead (Pb)	46.70	218.00	0.10
SYCM001501	MG/KG	0.08	U	Mercury (Hg)	0.15	0.71	0.11
SYCM001501	MG/KG	17.70	J	Nickel (Ni)	20.90	51.60	0.34
SYCM001501	MG/KG	0.78	J	Silver (Ag)	1.00	3.70	0.21
SYCM001501	MG/KG	60.50		Zinc (Zn)	150.00	410.00	0.15
SYCM001501	UG/KG	8.21	U	4,4'-DDE	2.20	27.00	0.30
SYCM001501	UG/KG	8.21	U	4,4'-DDT	1.58	46.10	0.18
SYCM001501	UG/KG	329.80	U	Total PCBs	22.70	180.00	1.83
SYCM001501	UG/KG	820.00	U	2-Methylnaphthalene	70.00	670.00	1.22
SYCM001501	UG/KG	820.00	U	Acenaphthene	16.00	500.00	1.64
SYCM001501	UG/KG	820.00	U	Acenaphthylene	44.00	640.00	1.28
SYCM001501	UG/KG	820.00	U	Anthracene	85.30	1100.00	0.75
SYCM001501	UG/KG	820.00	U	Benz(a)anthracene	261.00	1600.00	0.51
SYCM001501	UG/KG	820.00	U	Benz(a)pyrene	430.00	1600.00	0.51
SYCM001501	UG/KG	820.00	U	Chrysene	384.00	2800.00	0.29
SYCM001501	UG/KG	820.00	U	Dibenz(a,h)anthracene	63.40	260.00	3.15
SYCM001501	UG/KG	820.00	U	Fluoranthene	600.00	5100.00	0.16
SYCM001501	UG/KG	820.00	U	Fluorene	19.00	540.00	1.52
SYCM001501	UG/KG	820.00	U	Naphthalene	160.00	2100.00	0.39
SYCM001501	UG/KG	820.00	U	Phenanthrene	240.00	1500.00	0.55
SYCM001501	UG/KG	820.00	U	Pyrene	665.00	2600.00	0.32
ERM Quotient Sum							16.09
SYCM001501				Mean ERM Quotient			0.64
SYCM001501				Mean ERM Quotient without ND			0.05
SYCM001601	MG/KG	21.00		Arsenic (As)	8.20	70.00	0.30
SYCM001601	MG/KG	0.94	J	Cadmium (Cd)	1.20	9.60	0.10
SYCM001601	MG/KG	48.20	J	Chromium (Cr)	81.00	370.00	0.13
SYCM001601	MG/KG	21.70	J	Copper (Cu)	34.00	270.00	0.08
SYCM001601	MG/KG	27.40	J	Lead (Pb)	46.70	218.00	0.13
SYCM001601	MG/KG	0.13	U	Mercury (Hg)	0.15	0.71	0.18
SYCM001601	MG/KG	13.20	J	Nickel (Ni)	20.90	51.60	0.26
SYCM001601	MG/KG	2.50	U	Silver (Ag)	1.00	3.70	0.68
SYCM001601	MG/KG	91.90	J	Zinc (Zn)	150.00	410.00	0.22
SYCM001601	UG/KG	14.80	U	4,4'-DDE	2.20	27.00	0.55
SYCM001601	UG/KG	14.80	U	4,4'-DDT	1.58	46.10	0.32
SYCM001601	UG/KG	594.00	U	Total PCBs	22.70	180.00	3.30
SYCM001601	UG/KG	1500.00	UJ	2-Methylnaphthalene	70.00	670.00	2.24
SYCM001601	UG/KG	1500.00	UJ	Acenaphthene	16.00	500.00	3.00
SYCM001601	UG/KG	1500.00	UJ	Acenaphthylene	44.00	640.00	2.34
SYCM001601	UG/KG	1500.00	UJ	Anthracene	85.30	1100.00	1.36
SYCM001601	UG/KG	1500.00	UJ	Benz(a)anthracene	261.00	1600.00	0.94
SYCM001601	UG/KG	1500.00	UJ	Benz(a)pyrene	430.00	1600.00	0.94
SYCM001601	UG/KG	1500.00	UJ	Chrysene	384.00	2800.00	0.54
SYCM001601	UG/KG	1500.00	UJ	Dibenz(a,h)anthracene	63.40	260.00	5.77
SYCM001601	UG/KG	1500.00	UJ	Fluoranthene	600.00	5100.00	0.29
SYCM001601	UG/KG	1500.00	UJ	Fluorene	19.00	540.00	2.78
SYCM001601	UG/KG	1500.00	UJ	Naphthalene	160.00	2100.00	0.71
SYCM001601	UG/KG	1500.00	UJ	Phenanthrene	240.00	1500.00	1.00
SYCM001601	UG/KG	1500.00	UJ	Pyrene	665.00	2600.00	0.58
ERM Quotient Sum							28.73
SYCM001601				Mean ERM Quotient			1.15
SYCM001601				Mean ERM Quotient without ND			0.05

**Shipyard Creek**  
**Sediment Mean ERM Quotients**

SAMPLE ID	UNITS	RESULT	VQUAL	PARAMETER	ERL	ERM	ERM QUOTIENT
SYCM001701	MG/KG	22.70		Arsenic (As)	8.20	70.00	0.32
SYCM001701	MG/KG	0.19	J	Cadmium (Cd)	1.20	9.60	0.02
SYCM001701	MG/KG	45.20		Chromium (Cr)	81.00	370.00	0.12
SYCM001701	MG/KG	12.90		Copper (Cu)	34.00	270.00	0.05
SYCM001701	MG/KG	22.20		Lead (Pb)	46.70	218.00	0.10
SYCM001701	MG/KG	0.06	U	Mercury (Hg)	0.15	0.71	0.08
SYCM001701	MG/KG	13.90	J	Nickel (Ni)	20.90	51.60	0.27
SYCM001701	MG/KG	0.39	U	Silver (Ag)	1.00	3.70	0.11
SYCM001701	MG/KG	47.60		Zinc (Zn)	150.00	410.00	0.12
SYCM001701	UG/KG	8.29	U	4,4'-DDE	2.20	27.00	0.31
SYCM001701	UG/KG	8.29	U	4,4'-DDT	1.58	46.10	0.18
SYCM001701	UG/KG	332.70	U	Total PCBs	22.70	180.00	1.85
SYCM001701	UG/KG	820.00	U	2-Methylnaphthalene	70.00	670.00	1.22
SYCM001701	UG/KG	820.00	U	Acenaphthene	16.00	500.00	1.64
SYCM001701	UG/KG	820.00	U	Acenaphthylene	44.00	640.00	1.28
SYCM001701	UG/KG	820.00	U	Anthracene	85.30	1100.00	0.75
SYCM001701	UG/KG	820.00	U	Benzo(a)anthracene	261.00	1600.00	0.51
SYCM001701	UG/KG	820.00	U	Benzo(a)pyrene	430.00	1600.00	0.51
SYCM001701	UG/KG	820.00	U	Chrysene	384.00	2800.00	0.29
SYCM001701	UG/KG	820.00	U	Dibenz(a,h)anthracene	63.40	260.00	3.15
SYCM001701	UG/KG	820.00	U	Fluoranthene	600.00	5100.00	0.16
SYCM001701	UG/KG	820.00	U	Fluorene	19.00	540.00	1.52
SYCM001701	UG/KG	820.00	U	Naphthalene	160.00	2100.00	0.39
SYCM001701	UG/KG	820.00	U	Phenanthrene	240.00	1500.00	0.55
SYCM001701	UG/KG	820.00	U	Pyrene	665.00	2600.00	0.32
				ERM Quotient Sum			15.82
SYCM001701				Mean ERM Quotient			0.63
SYCM001701				Mean ERM Quotient without ND			0.04
SYCM001801	MG/KG	11.50		Arsenic (As)	8.20	70.00	0.16
SYCM001801	MG/KG	0.59	J	Cadmium (Cd)	1.20	9.60	0.06
SYCM001801	MG/KG	37.10		Chromium (Cr)	81.00	370.00	0.10
SYCM001801	MG/KG	61.80		Copper (Cu)	34.00	270.00	0.23
SYCM001801	MG/KG	10.50		Lead (Pb)	46.70	218.00	0.05
SYCM001801	MG/KG	0.04	U	Mercury (Hg)	0.15	0.71	0.06
SYCM001801	MG/KG	8.30	J	Nickel (Ni)	20.90	51.60	0.16
SYCM001801	MG/KG	0.18	U	Silver (Ag)	1.00	3.70	0.05
SYCM001801	MG/KG	30.90		Zinc (Zn)	150.00	410.00	0.08
SYCM001801	UG/KG	4.01	U	4,4'-DDE	2.20	27.00	0.15
SYCM001801	UG/KG	4.01	U	4,4'-DDT	1.58	46.10	0.09
SYCM001801	UG/KG	161.00	U	Total PCBs	22.70	180.00	0.89
SYCM001801	UG/KG	400.00	U	2-Methylnaphthalene	70.00	670.00	0.60
SYCM001801	UG/KG	400.00	U	Acenaphthene	16.00	500.00	0.80
SYCM001801	UG/KG	400.00	U	Acenaphthylene	44.00	640.00	0.63
SYCM001801	UG/KG	400.00	U	Anthracene	85.30	1100.00	0.36
SYCM001801	UG/KG	92.00	J	Benzo(a)anthracene	261.00	1600.00	0.06
SYCM001801	UG/KG	75.00	J	Benzo(a)pyrene	430.00	1600.00	0.05
SYCM001801	UG/KG	110.00	J	Chrysene	384.00	2800.00	0.04
SYCM001801	UG/KG	400.00	U	Dibenz(a,h)anthracene	63.40	260.00	1.54
SYCM001801	UG/KG	160.00	J	Fluoranthene	600.00	5100.00	0.03
SYCM001801	UG/KG	400.00	U	Fluorene	19.00	540.00	0.74
SYCM001801	UG/KG	400.00	U	Naphthalene	160.00	2100.00	0.19
SYCM001801	UG/KG	83.00	J	Phenanthrene	240.00	1500.00	0.06
SYCM001801	UG/KG	160.00	J	Pyrene	665.00	2600.00	0.06
				ERM Quotient Sum			7.22
SYCM001801				Mean ERM Quotient			0.29
SYCM001801				Mean ERM Quotient without ND			0.05

**Shipyard Creek**  
**Sediment Mean ERM Quotients**

SAMPLE ID	UNITS	RESULT	VQUAL	PARAMETER	ERL	ERM	ERM QUOTIENT
SYCM001901	MG/KG	21.70		Arsenic (As)	8.20	70.00	0.31
SYCM001901	MG/KG	0.84	J	Cadmium (Cd)	1.20	9.60	0.09
SYCM001901	MG/KG	52.40	J	Chromium (Cr)	81.00	370.00	0.14
SYCM001901	MG/KG	21.30	J	Copper (Cu)	34.00	270.00	0.08
SYCM001901	MG/KG	28.60	J	Lead (Pb)	46.70	218.00	0.13
SYCM001901	MG/KG	0.16	U	Mercury (Hg)	0.15	0.71	0.23
SYCM001901	MG/KG	14.40	J	Nickel (Ni)	20.90	51.60	0.28
SYCM001901	MG/KG	2.50	U	Silver (Ag)	1.00	3.70	0.68
SYCM001901	MG/KG	103.00	J	Zinc (Zn)	150.00	410.00	0.25
SYCM001901	UG/KG	15.30	U	4,4'-DDE	2.20	27.00	0.57
SYCM001901	UG/KG	15.30	U	4,4'-DDT	1.58	46.10	0.33
SYCM001901	UG/KG	614.50	U	Total PCBs	22.70	180.00	3.41
SYCM001901	UG/KG	1500.00	U	2-Methylnaphthalene	70.00	670.00	2.24
SYCM001901	UG/KG	1500.00	U	Acenaphthene	16.00	500.00	3.00
SYCM001901	UG/KG	1500.00	U	Acenaphthylene	44.00	640.00	2.34
SYCM001901	UG/KG	1500.00	U	Anthracene	85.30	1100.00	1.36
SYCM001901	UG/KG	1500.00	U	Benz(a)anthracene	261.00	1600.00	0.94
SYCM001901	UG/KG	1500.00	U	Benz(a)pyrene	430.00	1600.00	0.94
SYCM001901	UG/KG	1500.00	U	Chrysene	384.00	2800.00	0.54
SYCM001901	UG/KG	1500.00	U	Dibenz(a,h)anthracene	63.40	260.00	0.57
SYCM001901	UG/KG	1500.00	U	Fluoranthene	600.00	5100.00	0.29
SYCM001901	UG/KG	1500.00	U	Fluorene	19.00	540.00	2.78
SYCM001901	UG/KG	1500.00	U	Naphthalene	160.00	2100.00	0.71
SYCM001901	UG/KG	1500.00	U	Phenanthrene	240.00	1500.00	1.00
SYCM001901	UG/KG	1500.00	U	Pyrene	665.00	2600.00	0.58
				ERM Quotient Sum			28.98
SYCM001901				Mean ERM Quotient			1.16
SYCM001901				Mean ERM Quotient without ND			0.05
SYCM002001	MG/KG	20.60		Arsenic (As)	8.20	70.00	0.29
SYCM002001	MG/KG	0.17	U	Cadmium (Cd)	1.20	9.60	0.02
SYCM002001	MG/KG	53.40	J	Chromium (Cr)	81.00	370.00	0.14
SYCM002001	MG/KG	18.30	J	Copper (Cu)	34.00	270.00	0.07
SYCM002001	MG/KG	22.50		Lead (Pb)	46.70	218.00	0.10
SYCM002001	MG/KG	0.17	U	Mercury (Hg)	0.15	0.71	0.24
SYCM002001	MG/KG	14.40	J	Nickel (Ni)	20.90	51.60	0.28
SYCM002001	MG/KG	1.40	UJ	Silver (Ag)	1.00	3.70	0.38
SYCM002001	MG/KG	76.50		Zinc (Zn)	150.00	410.00	0.19
SYCM002001	UG/KG	15.60	UJ	4,4'-DDE	2.20	27.00	0.58
SYCM002001	UG/KG	15.60	UJ	4,4'-DDT	1.58	46.10	0.34
SYCM002001	UG/KG	624.00	U	Total PCBs	22.70	180.00	3.47
SYCM002001	UG/KG	1600.00	U	2-Methylnaphthalene	70.00	670.00	2.39
SYCM002001	UG/KG	1600.00	U	Acenaphthene	16.00	500.00	3.20
SYCM002001	UG/KG	1600.00	U	Acenaphthylene	44.00	640.00	2.50
SYCM002001	UG/KG	1600.00	U	Anthracene	85.30	1100.00	1.45
SYCM002001	UG/KG	1600.00	U	Benz(a)anthracene	261.00	1600.00	1.00
SYCM002001	UG/KG	1600.00	U	Benz(a)pyrene	430.00	1600.00	1.00
SYCM002001	UG/KG	180.00	J	Chrysene	384.00	2800.00	0.06
SYCM002001	UG/KG	1600.00	U	Dibenz(a,h)anthracene	63.40	260.00	6.15
SYCM002001	UG/KG	350.00	J	Fluoranthene	600.00	5100.00	0.07
SYCM002001	UG/KG	1600.00	U	Fluorene	19.00	540.00	2.96
SYCM002001	UG/KG	1600.00	U	Naphthalene	160.00	2100.00	0.76
SYCM002001	UG/KG	170.00	J	Phenanthrene	240.00	1500.00	0.11
SYCM002001	UG/KG	250.00	J	Pyrene	665.00	2600.00	0.10
				ERM Quotient Sum			27.86
SYCM002001				Mean ERM Quotient			1.11
SYCM002001				Mean ERM Quotient without ND			0.06

**Shipyard Creek**  
**Sediment Mean ERM Quotients**

SAMPLE ID	UNITS	RESULT	VQUAL	PARAMETER	ERL	ERM	ERM QUOTIENT
SYCM002101	MG/KG	13.70		Arsenic (As)	8.20	70.00	0.20
SYCM002101	MG/KG	0.08	J	Cadmium (Cd)	1.20	9.60	0.01
SYCM002101	MG/KG	40.20	J	Chromium (Cr)	81.00	370.00	0.11
SYCM002101	MG/KG	11.30		Copper (Cu)	34.00	270.00	0.04
SYCM002101	MG/KG	17.50		Lead (Pb)	46.70	218.00	0.08
SYCM002101	MG/KG	0.06	U	Mercury (Hg)	0.15	0.71	0.08
SYCM002101	MG/KG	14.50		Nickel (Ni)	20.90	51.60	0.28
SYCM002101	MG/KG	0.50	UJ	Silver (Ag)	1.00	3.70	0.14
SYCM002101	MG/KG	43.20		Zinc (Zn)	150.00	410.00	0.11
SYCM002101	UG/KG	5.51	UJ	4,4'-DDE	2.20	27.00	0.20
SYCM002101	UG/KG	5.51	UJ	4,4'-DDT	1.58	46.10	0.12
SYCM002101	UG/KG	220.30	U	Total PCBs	22.70	180.00	1.22
SYCM002101	UG/KG	550.00	U	2-Methylnaphthalene	70.00	670.00	0.82
SYCM002101	UG/KG	550.00	U	Acenaphthene	16.00	500.00	1.10
SYCM002101	UG/KG	550.00	U	Acenaphthylene	44.00	640.00	0.86
SYCM002101	UG/KG	550.00	U	Anthracene	85.30	1100.00	0.50
SYCM002101	UG/KG	68.00	J	Benz(a)anthracene	261.00	1600.00	0.04
SYCM002101	UG/KG	60.00	J	Benz(a)pyrene	430.00	1600.00	0.04
SYCM002101	UG/KG	74.00	J	Chrysene	384.00	2800.00	0.03
SYCM002101	UG/KG	550.00	U	Dibenz(a,h)anthracene	63.40	260.00	2.12
SYCM002101	UG/KG	71.00	J	Fluoranthene	600.00	5100.00	0.01
SYCM002101	UG/KG	550.00	U	Fluorene	19.00	540.00	1.02
SYCM002101	UG/KG	550.00	U	Naphthalene	160.00	2100.00	0.26
SYCM002101	UG/KG	550.00	U	Phenanthrene	240.00	1500.00	0.37
SYCM002101	UG/KG	210.00	J	Pyrene	665.00	2600.00	0.08
ERM Quotient Sum							9.83
SYCM002101							0.39
SYCM002101							0.04
SYCM002201	MG/KG	13.80		Arsenic (As)	8.20	70.00	0.20
SYCM002201	MG/KG	0.72	J	Cadmium (Cd)	1.20	9.60	0.08
SYCM002201	MG/KG	37.00	J	Chromium (Cr)	81.00	370.00	0.10
SYCM002201	MG/KG	16.10	J	Copper (Cu)	34.00	270.00	0.06
SYCM002201	MG/KG	19.70	J	Lead (Pb)	46.70	218.00	0.09
SYCM002201	MG/KG	0.13	U	Mercury (Hg)	0.15	0.71	0.18
SYCM002201	MG/KG	10.80	J	Nickel (Ni)	20.90	51.60	0.21
SYCM002201	MG/KG	1.90	U	Silver (Ag)	1.00	3.70	0.51
SYCM002201	MG/KG	69.20	J	Zinc (Zn)	150.00	410.00	0.17
SYCM002201	UG/KG	11.50	U	4,4'-DDE	2.20	27.00	0.43
SYCM002201	UG/KG	11.50	U	4,4'-DDT	1.58	46.10	0.25
SYCM002201	UG/KG	462.00	U	Total PCBs	22.70	180.00	2.57
SYCM002201	UG/KG	1100.00	UJ	2-Methylnaphthalene	70.00	670.00	1.64
SYCM002201	UG/KG	1100.00	UJ	Acenaphthene	16.00	500.00	2.20
SYCM002201	UG/KG	1100.00	UJ	Acenaphthylene	44.00	640.00	1.72
SYCM002201	UG/KG	1100.00	UJ	Anthracene	85.30	1100.00	1.00
SYCM002201	UG/KG	1100.00	UJ	Benz(a)anthracene	261.00	1600.00	0.69
SYCM002201	UG/KG	1100.00	UJ	Benz(a)pyrene	430.00	1600.00	0.69
SYCM002201	UG/KG	1100.00	UJ	Chrysene	384.00	2800.00	0.39
SYCM002201	UG/KG	1100.00	UJ	Dibenz(a,h)anthracene	63.40	260.00	4.23
SYCM002201	UG/KG	1100.00	UJ	Fluoranthene	600.00	5100.00	0.22
SYCM002201	UG/KG	1100.00	UJ	Fluorene	19.00	540.00	2.04
SYCM002201	UG/KG	1100.00	UJ	Naphthalene	160.00	2100.00	0.52
SYCM002201	UG/KG	1100.00	UJ	Phenanthrene	240.00	1500.00	0.73
SYCM002201	UG/KG	1100.00	UJ	Pyrene	665.00	2600.00	0.42
ERM Quotient Sum							21.33
SYCM002201							0.85
SYCM002201							0.04

**Shipyard Creek**  
**Sediment Mean ERM Quotients**

SAMPLE ID	UNITS	RESULT	VQUAL	PARAMETER	ERL	ERM	ERM QUOTIENT
SYCM016A01	MG/KG	21.30		Arsenic (As)	8.20	70.00	0.30
SYCM016A01	MG/KG	1.10	J	Cadmium (Cd)	1.20	9.60	0.11
SYCM016A01	MG/KG	55.40	J	Chromium (Cr)	81.00	370.00	0.15
SYCM016A01	MG/KG	20.90	J	Copper (Cu)	34.00	270.00	0.08
SYCM016A01	MG/KG	25.40	J	Lead (Pb)	46.70	218.00	0.12
SYCM016A01	MG/KG	0.17	U	Mercury (Hg)	0.15	0.71	0.24
SYCM016A01	MG/KG	16.20	J	Nickel (Ni)	20.90	51.60	0.31
SYCM016A01	MG/KG	2.60	U	Silver (Ag)	1.00	3.70	0.70
SYCM016A01	MG/KG	96.80	J	Zinc (Zn)	150.00	410.00	0.24
SYCM016A01	UG/KG	15.00	U	4,4'-DDE	2.20	27.00	0.56
SYCM016A01	UG/KG	15.00	U	4,4'-DDT	1.58	46.10	0.33
SYCM016A01	UG/KG	602.00	U	Total PCBs	22.70	180.00	3.34
SYCM016A01	UG/KG	1500.00	U	2-Methylnaphthalene	70.00	670.00	2.24
SYCM016A01	UG/KG	1500.00	U	Acenaphthene	16.00	500.00	3.00
SYCM016A01	UG/KG	1500.00	U	Acenaphthylene	44.00	640.00	2.34
SYCM016A01	UG/KG	1500.00	U	Anthracene	85.30	1100.00	1.36
SYCM016A01	UG/KG	1500.00	U	Benz(a)anthracene	261.00	1600.00	0.94
SYCM016A01	UG/KG	1500.00	U	Benzo(a)pyrene	430.00	1600.00	0.94
SYCM016A01	UG/KG	1500.00	U	Chrysene	384.00	2800.00	0.54
SYCM016A01	UG/KG	1500.00	U	Dibenz(a,h)anthracene	63.40	260.00	5.77
SYCM016A01	UG/KG	180.00	J	Fluoranthene	600.00	5100.00	0.04
SYCM016A01	UG/KG	1500.00	U	Fluorene	19.00	540.00	2.78
SYCM016A01	UG/KG	1500.00	U	Naphthalene	160.00	2100.00	0.71
SYCM016A01	UG/KG	1500.00	U	Phenanthrene	240.00	1500.00	1.00
SYCM016A01	UG/KG	1500.00	U	Pyrene	665.00	2600.00	0.58
ERM Quotient Sum							28.71
SYCM016A01							1.15
SYCM016A01							0.05
SYCM018A01	MG/KG	11.40		Arsenic (As)	8.20	70.00	0.16
SYCM018A01	MG/KG	0.78	J	Cadmium (Cd)	1.20	9.60	0.08
SYCM018A01	MG/KG	39.80	J	Chromium (Cr)	81.00	370.00	0.11
SYCM018A01	MG/KG	15.10	J	Copper (Cu)	34.00	270.00	0.06
SYCM018A01	MG/KG	15.40	J	Lead (Pb)	46.70	218.00	0.07
SYCM018A01	MG/KG	0.06	U	Mercury (Hg)	0.15	0.71	0.08
SYCM018A01	MG/KG	12.90	J	Nickel (Ni)	20.90	51.60	0.25
SYCM018A01	MG/KG	0.97	U	Silver (Ag)	1.00	3.70	0.26
SYCM018A01	MG/KG	56.30	J	Zinc (Zn)	150.00	410.00	0.14
SYCM018A01	UG/KG	5.82	U	4,4'-DDE	2.20	27.00	0.22
SYCM018A01	UG/KG	5.82	U	4,4'-DDT	1.58	46.10	0.13
SYCM018A01	UG/KG	233.60	U	Total PCBs	22.70	180.00	1.30
SYCM018A01	UG/KG	580.00	U	2-Methylnaphthalene	70.00	670.00	0.87
SYCM018A01	UG/KG	580.00	U	Acenaphthene	16.00	500.00	1.16
SYCM018A01	UG/KG	580.00	U	Acenaphthylene	44.00	640.00	0.91
SYCM018A01	UG/KG	580.00	U	Anthracene	85.30	1100.00	0.53
SYCM018A01	UG/KG	60.00	J	Benz(a)anthracene	261.00	1600.00	0.04
SYCM018A01	UG/KG	580.00	U	Benzo(a)pyrene	430.00	1600.00	0.36
SYCM018A01	UG/KG	76.00	J	Chrysene	384.00	2800.00	0.03
SYCM018A01	UG/KG	580.00	U	Dibenz(a,h)anthracene	63.40	260.00	2.23
SYCM018A01	UG/KG	210.00	J	Fluoranthene	600.00	5100.00	0.04
SYCM018A01	UG/KG	580.00	U	Fluorene	19.00	540.00	1.07
SYCM018A01	UG/KG	580.00	U	Naphthalene	160.00	2100.00	0.28
SYCM018A01	UG/KG	110.00	J	Phenanthrene	240.00	1500.00	0.07
SYCM018A01	UG/KG	180.00	J	Pyrene	665.00	2600.00	0.07
ERM Quotient Sum							10.50
SYCM018A01							0.42
SYCM018A01							0.04

**Shipyard Creek**  
**Sediment Mean ERM Quotients**

SAMPLE ID	UNITS	RESULT	VQUAL	PARAMETER	ERL	ERM	ERM QUOTIENT
SYCN001601	MG/KG	19.00		Arsenic (As)	8.20	70.00	0.27
SYCN001601	MG/KG	0.90	J	Cadmium (Cd)	1.20	9.60	0.09
SYCN001601	MG/KG	47.20	J	Chromium (Cr)	81.00	370.00	0.13
SYCN001601	MG/KG	19.00	J	Copper (Cu)	34.00	270.00	0.07
SYCN001601	MG/KG	24.50	J	Lead (Pb)	46.70	218.00	0.11
SYCN001601	MG/KG	0.12	U	Mercury (Hg)	0.15	0.71	0.17
SYCN001601	MG/KG	12.90	J	Nickel (Ni)	20.90	51.60	0.25
SYCN001601	MG/KG	2.00	U	Silver (Ag)	1.00	3.70	0.54
SYCN001601	MG/KG	83.60	J	Zinc (Zn)	150.00	410.00	0.20
SYCN001601	UG/KG	13.80	U	4,4'-DDE	2.20	27.00	0.51
SYCN001601	UG/KG	13.80	U	4,4'-DDT	1.58	46.10	0.30
SYCN001601	UG/KG	553.50	U	Total PCBs	22.70	180.00	3.08
SYCN001601	UG/KG	1400.00	UJ	2-Methylnaphthalene	70.00	670.00	2.09
SYCN001601	UG/KG	1400.00	UJ	Acenaphthene	16.00	500.00	2.80
SYCN001601	UG/KG	1400.00	UJ	Acenaphthylene	44.00	640.00	2.19
SYCN001601	UG/KG	1400.00	UJ	Anthracene	85.30	1100.00	1.27
SYCN001601	UG/KG	1400.00	UJ	Benz(a)anthracene	261.00	1600.00	0.88
SYCN001601	UG/KG	1400.00	UJ	Benz(a)pyrene	430.00	1600.00	0.88
SYCN001601	UG/KG	1400.00	UJ	Chrysene	384.00	2800.00	0.50
SYCN001601	UG/KG	1400.00	UJ	Dibenz(a,h)anthracene	63.40	260.00	5.38
SYCN001601	UG/KG	1400.00	UJ	Fluoranthene	600.00	5100.00	0.27
SYCN001601	UG/KG	1400.00	UJ	Fluorene	19.00	540.00	2.59
SYCN001601	UG/KG	1400.00	UJ	Naphthalene	160.00	2100.00	0.67
SYCN001601	UG/KG	1400.00	UJ	Phenanthrene	240.00	1500.00	0.93
SYCN001601	UG/KG	1400.00	UJ	Pyrene	665.00	2600.00	0.54
				ERM Quotient Sum			26.71
SYCN001601				Mean ERM Quotient			1.07
SYCN001601				Mean ERM Quotient without ND			0.05
SYCN001701	MG/KG	25.70		Arsenic (As)	8.20	70.00	0.37
SYCN001701	MG/KG	0.45	J	Cadmium (Cd)	1.20	9.60	0.05
SYCN001701	MG/KG	42.40		Chromium (Cr)	81.00	370.00	0.11
SYCN001701	MG/KG	11.50	J	Copper (Cu)	34.00	270.00	0.04
SYCN001701	MG/KG	17.00		Lead (Pb)	46.70	218.00	0.08
SYCN001701	MG/KG	0.06	U	Mercury (Hg)	0.15	0.71	0.08
SYCN001701	MG/KG	13.90	J	Nickel (Ni)	20.90	51.60	0.27
SYCN001701	MG/KG	0.87	J	Silver (Ag)	1.00	3.70	0.24
SYCN001701	MG/KG	46.10		Zinc (Zn)	150.00	410.00	0.11
SYCN001701	UG/KG	8.18	U	4,4'-DDE	2.20	27.00	0.30
SYCN001701	UG/KG	8.18	U	4,4'-DDT	1.58	46.10	0.18
SYCN001701	UG/KG	328.40	U	Total PCBs	22.70	180.00	1.82
SYCN001701	UG/KG	820.00	U	2-Methylnaphthalene	70.00	670.00	1.22
SYCN001701	UG/KG	820.00	U	Acenaphthene	16.00	500.00	1.64
SYCN001701	UG/KG	820.00	U	Acenaphthylene	44.00	640.00	1.28
SYCN001701	UG/KG	820.00	U	Anthracene	85.30	1100.00	0.75
SYCN001701	UG/KG	820.00	U	Benz(a)anthracene	261.00	1600.00	0.51
SYCN001701	UG/KG	820.00	U	Benz(a)pyrene	430.00	1600.00	0.51
SYCN001701	UG/KG	820.00	U	Chrysene	384.00	2800.00	0.29
SYCN001701	UG/KG	820.00	U	Dibenz(a,h)anthracene	63.40	260.00	3.15
SYCN001701	UG/KG	820.00	U	Fluoranthene	600.00	5100.00	0.16
SYCN001701	UG/KG	820.00	U	Fluorene	19.00	540.00	1.52
SYCN001701	UG/KG	820.00	U	Naphthalene	160.00	2100.00	0.39
SYCN001701	UG/KG	820.00	U	Phenanthrene	240.00	1500.00	0.55
SYCN001701	UG/KG	820.00	U	Pyrene	665.00	2600.00	0.32
				ERM Quotient Sum			15.95
SYCN001701				Mean ERM Quotient			0.64
SYCN001701				Mean ERM Quotient without ND			0.05

**Shipyard Creek**  
**Sediment Mean ERM Quotients**

SAMPLE ID	UNITS	RESULT	VQUAL	PARAMETER	ERL	ERM	ERM QUOTIENT
SYCN002101	MG/KG	15.90		Arsenic (As)	8.20	70.00	0.23
SYCN002101	MG/KG	0.29	J	Cadmium (Cd)	1.20	9.60	0.03
SYCN002101	MG/KG	46.40	J	Chromium (Cr)	81.00	370.00	0.13
SYCN002101	MG/KG	13.90		Copper (Cu)	34.00	270.00	0.05
SYCN002101	MG/KG	17.90		Lead (Pb)	46.70	218.00	0.08
SYCN002101	MG/KG	0.04	U	Mercury (Hg)	0.15	0.71	0.06
SYCN002101	MG/KG	16.00		Nickel (Ni)	20.90	51.60	0.31
SYCN002101	MG/KG	0.53	UJ	Silver (Ag)	1.00	3.70	0.14
SYCN002101	MG/KG	58.90		Zinc (Zn)	150.00	410.00	0.14
SYCN002101	UG/KG	5.92	UJ	4,4'-DDE	2.20	27.00	0.22
SYCN002101	UG/KG	5.92	UJ	4,4'-DDT	1.58	46.10	0.13
SYCN002101	UG/KG	226.60	U	Total PCBs	22.70	180.00	1.26
SYCN002101	UG/KG	610.00	U	2-Methylnaphthalene	70.00	670.00	0.91
SYCN002101	UG/KG	610.00	U	Acenaphthene	16.00	500.00	1.22
SYCN002101	UG/KG	610.00	U	Acenaphthylene	44.00	640.00	0.95
SYCN002101	UG/KG	610.00	U	Anthracene	85.30	1100.00	0.55
SYCN002101	UG/KG	69.00	J	Benzo(a)anthracene	261.00	1600.00	0.04
SYCN002101	UG/KG	610.00	U	Benzo(a)pyrene	430.00	1600.00	0.38
SYCN002101	UG/KG	66.00	J	Chrysene	384.00	2800.00	0.02
SYCN002101	UG/KG	610.00	U	Dibenz(a,h)anthracene	63.40	260.00	2.35
SYCN002101	UG/KG	160.00	J	Fluoranthene	600.00	5100.00	0.03
SYCN002101	UG/KG	610.00	U	Fluorene	19.00	540.00	1.13
SYCN002101	UG/KG	610.00	U	Naphthalene	160.00	2100.00	0.29
SYCN002101	UG/KG	69.00	J	Phenanthrene	240.00	1500.00	0.05
SYCN002101	UG/KG	130.00	J	Pyrene	665.00	2600.00	0.05
ERM Quotient Sum							10.76
SYCN002101							0.43
SYCN002101							0.05
SYCN018A01	MG/KG	12.00		Arsenic (As)	8.20	70.00	0.17
SYCN018A01	MG/KG	0.81	J	Cadmium (Cd)	1.20	9.60	0.08
SYCN018A01	MG/KG	44.30	J	Chromium (Cr)	81.00	370.00	0.12
SYCN018A01	MG/KG	15.90	J	Copper (Cu)	34.00	270.00	0.06
SYCN018A01	MG/KG	16.50	J	Lead (Pb)	46.70	218.00	0.08
SYCN018A01	MG/KG	0.05	U	Mercury (Hg)	0.15	0.71	0.07
SYCN018A01	MG/KG	14.10		Nickel (Ni)	20.90	51.60	0.27
SYCN018A01	MG/KG	0.87	U	Silver (Ag)	1.00	3.70	0.24
SYCN018A01	MG/KG	60.30	J	Zinc (Zn)	150.00	410.00	0.15
SYCN018A01	UG/KG	5.65	U	4,4'-DDE	2.20	27.00	0.21
SYCN018A01	UG/KG	5.65	U	4,4'-DDT	1.58	46.10	0.12
SYCN018A01	UG/KG	227.00	U	Total PCBs	22.70	180.00	1.26
SYCN018A01	UG/KG	560.00	U	2-Methylnaphthalene	70.00	670.00	0.84
SYCN018A01	UG/KG	560.00	U	Acenaphthene	16.00	500.00	1.12
SYCN018A01	UG/KG	560.00	U	Acenaphthylene	44.00	640.00	0.88
SYCN018A01	UG/KG	560.00	U	Anthracene	85.30	1100.00	0.51
SYCN018A01	UG/KG	190.00	J	Benzo(a)anthracene	261.00	1600.00	0.12
SYCN018A01	UG/KG	220.00	J	Benzo(a)pyrene	430.00	1600.00	0.14
SYCN018A01	UG/KG	180.00	J	Chrysene	384.00	2800.00	0.06
SYCN018A01	UG/KG	560.00	U	Dibenz(a,h)anthracene	63.40	260.00	2.15
SYCN018A01	UG/KG	240.00	J	Fluoranthene	600.00	5100.00	0.05
SYCN018A01	UG/KG	560.00	U	Fluorene	19.00	540.00	1.04
SYCN018A01	UG/KG	560.00	U	Naphthalene	160.00	2100.00	0.27
SYCN018A01	UG/KG	560.00	U	Phenanthrene	240.00	1500.00	0.37
SYCN018A01	UG/KG	280.00	J	Pyrene	665.00	2600.00	0.11
ERM Quotient Sum							10.48
SYCN018A01							0.42
SYCN018A01							0.06

**Shipyard Creek**  
**Sediment Mean ERM Quotients**

SAMPLE ID	UNITS	RESULT	VQUAL	PARAMETER	ERL	ERM	ERM QUOTIENT
009M000101	MG/KG	14.10		Arsenic (As)	8.20	70.00	0.20
009M000101	MG/KG	0.26	U	Cadmium (Cd)	1.20	9.60	0.03
009M000101	MG/KG	132.00		Chromium (Cr)	81.00	370.00	0.36
009M000101	MG/KG	31.40		Copper (Cu)	34.00	270.00	0.12
009M000101	MG/KG	44.80		Lead (Pb)	46.70	218.00	0.21
009M000101	MG/KG	0.16		Mercury (Hg)	0.15	0.71	0.23
009M000101	MG/KG	24.30		Nickel (Ni)	20.90	51.60	0.47
009M000101	MG/KG	0.44	U	Silver (Ag)	1.00	3.70	0.12
009M000101	MG/KG	115.00		Zinc (Zn)	150.00	410.00	0.28
009M000101	UG/KG	4.00		4,4'-DDE	2.20	27.00	0.15
009M000101	UG/KG	9.00	U	4,4'-DDT	1.58	46.10	0.20
009M000101	UG/KG	230.00		Total PCBs	22.70	180.00	1.28
009M000101	UG/KG	88.00	UJ	2-Methylnaphthalene	70.00	670.00	0.13
009M000101	UG/KG	88.00	UJ	Acenaphthene	16.00	500.00	0.18
009M000101	UG/KG	88.00	UJ	Acenaphthylene	44.00	640.00	0.14
009M000101	UG/KG	88.00	UJ	Anthracene	85.30	1100.00	0.08
009M000101	UG/KG	87.00	J	Benz(a)anthracene	261.00	1600.00	0.05
009M000101	UG/KG	440.00	UJ	Benz(a)pyrene	430.00	1600.00	0.28
009M000101	UG/KG	440.00	UJ	Chrysene	384.00	2800.00	0.16
009M000101	UG/KG	440.00	UJ	Dibenz(a,h)anthracene	63.40	260.00	1.69
009M000101	UG/KG	230.00	J	Fluoranthene	600.00	5100.00	0.05
009M000101	UG/KG	88.00	UJ	Fluorene	19.00	540.00	0.16
009M000101	UG/KG	440.00	UJ	Naphthalene	160.00	2100.00	0.21
009M000101	UG/KG	440.00	UJ	Phenanthrene	240.00	1500.00	0.29
009M000101	UG/KG	280.00	J	Pyrene	665.00	2600.00	0.11
ERM Quotient Sum						7.15	
009M000101				Mean ERM Quotient		0.29	
009M000101				Mean ERM Quotient without ND		0.14	
009M000201	MG/KG	3.30		Arsenic (As)	8.20	70.00	0.05
009M000201	MG/KG	0.07	U	Cadmium (Cd)	1.20	9.60	0.01
009M000201	MG/KG	17.80		Chromium (Cr)	81.00	370.00	0.05
009M000201	MG/KG	228.00		Copper (Cu)	34.00	270.00	0.84
009M000201	MG/KG	102.00		Lead (Pb)	46.70	218.00	0.47
009M000201	MG/KG	0.02	J	Mercury (Hg)	0.15	0.71	0.03
009M000201	MG/KG	14.20		Nickel (Ni)	20.90	51.60	0.28
009M000201	MG/KG	0.11	U	Silver (Ag)	1.00	3.70	0.03
009M000201	MG/KG	133.00		Zinc (Zn)	150.00	410.00	0.32
009M000201	UG/KG	4.00		4,4'-DDE	2.20	27.00	0.15
009M000201	UG/KG	15.00		4,4'-DDT	1.58	46.10	0.33
009M000201	UG/KG	190.00		Total PCBs	22.70	180.00	1.06
009M000201	UG/KG	210.00	U	2-Methylnaphthalene	70.00	670.00	0.31
009M000201	UG/KG	210.00	U	Acenaphthene	16.00	500.00	0.42
009M000201	UG/KG	210.00	U	Acenaphthylene	44.00	640.00	0.33
009M000201	UG/KG	210.00	U	Anthracene	85.30	1100.00	0.19
009M000201	UG/KG	210.00	U	Benz(a)anthracene	261.00	1600.00	0.13
009M000201	UG/KG	210.00	U	Benz(a)pyrene	430.00	1600.00	0.13
009M000201	UG/KG	210.00	U	Chrysene	384.00	2800.00	0.08
009M000201	UG/KG	210.00	U	Dibenz(a,h)anthracene	63.40	260.00	0.81
009M000201	UG/KG	210.00	U	Fluoranthene	600.00	5100.00	0.04
009M000201	UG/KG	210.00	U	Fluorene	19.00	540.00	0.39
009M000201	UG/KG	210.00	U	Naphthalene	160.00	2100.00	0.10
009M000201	UG/KG	210.00	U	Phenanthrene	240.00	1500.00	0.14
009M000201	UG/KG	210.00	U	Pyrene	665.00	2600.00	0.08
ERM Quotient Sum						6.75	
009M000201				Mean ERM Quotient		0.27	
009M000201				Mean ERM Quotient without ND		0.14	

**Shipyard Creek**  
**Sediment Mean ERM Quotients**

SAMPLE ID	UNITS	RESULT	VQUAL	PARAMETER	ERL	ERM	ERM QUOTIENT
009M000301	MG/KG	15.60		Arsenic (As)	8.20	70.00	0.22
009M000301	MG/KG	0.23	J	Cadmium (Cd)	1.20	9.60	0.02
009M000301	MG/KG	48.30		Chromium (Cr)	81.00	370.00	0.13
009M000301	MG/KG	28.70		Copper (Cu)	34.00	270.00	0.11
009M000301	MG/KG	74.50		Lead (Pb)	46.70	218.00	0.34
009M000301	MG/KG	0.51		Mercury (Hg)	0.15	0.71	0.72
009M000301	MG/KG	18.30		Nickel (Ni)	20.90	51.60	0.35
009M000301	MG/KG	0.28	U	Silver (Ag)	1.00	3.70	0.08
009M000301	MG/KG	121.00		Zinc (Zn)	150.00	410.00	0.30
009M000301	UG/KG	21.00		4,4'-DDE	2.20	27.00	0.78
009M000301	UG/KG	10.00	U	4,4'-DDT	1.58	46.10	0.22
009M000301	UG/KG	175.00	U	Total PCBs	22.70	180.00	0.97
009M000301	UG/KG	110.00	UR	2-Methylnaphthalene	70.00	670.00	0.16
009M000301	UG/KG	110.00	UR	Acenaphthene	16.00	500.00	0.22
009M000301	UG/KG	110.00	UR	Acenaphthylene	44.00	640.00	0.17
009M000301	UG/KG	110.00	UR	Anthracene	85.30	1100.00	0.10
009M000301	UG/KG	530.00	UR	Benz(a)anthracene	261.00	1600.00	0.33
009M000301	UG/KG	530.00	UR	Benz(a)pyrene	430.00	1600.00	0.33
009M000301	UG/KG	530.00	UR	Chrysene	384.00	2800.00	0.19
009M000301	UG/KG	530.00	UR	Dibenz(a,h)anthracene	63.40	260.00	2.04
009M000301	UG/KG	190.00	UR	Fluoranthene	600.00	5100.00	0.04
009M000301	UG/KG	110.00	UR	Fluorene	19.00	540.00	0.20
009M000301	UG/KG	530.00	UR	Naphthalene	160.00	2100.00	0.25
009M000301	UG/KG	530.00	UR	Phenanthrene	240.00	1500.00	0.35
009M000301	UG/KG	180.00	UR	Pyrene	665.00	2600.00	0.07
ERM Quotient Sum							8.70
009M000301							0.35
009M000301							0.12
009M000401	MG/KG	11.90		Arsenic (As)	8.20	70.00	0.17
009M000401	MG/KG	0.64	J	Cadmium (Cd)	1.20	9.60	0.07
009M000401	MG/KG	291.00		Chromium (Cr)	81.00	370.00	0.79
009M000401	MG/KG	141.00		Copper (Cu)	34.00	270.00	0.52
009M000401	MG/KG	107.00		Lead (Pb)	46.70	218.00	0.49
009M000401	MG/KG	0.69		Mercury (Hg)	0.15	0.71	0.97
009M000401	MG/KG	37.30		Nickel (Ni)	20.90	51.60	0.72
009M000401	MG/KG	0.46	U	Silver (Ag)	1.00	3.70	0.12
009M000401	MG/KG	387.00		Zinc (Zn)	150.00	410.00	0.94
009M000401	UG/KG	110.00		4,4'-DDE	2.20	27.00	4.07
009M000401	UG/KG	50.00	U	4,4'-DDT	1.58	46.10	1.08
009M000401	UG/KG	4860.00		Total PCBs	22.70	180.00	27.00
009M000401	UG/KG	3600.00	U	2-Methylnaphthalene	70.00	670.00	5.37
009M000401	UG/KG	3600.00	U	Acenaphthene	16.00	500.00	7.20
009M000401	UG/KG	3600.00	U	Acenaphthylene	44.00	640.00	5.63
009M000401	UG/KG	3600.00	U	Anthracene	85.30	1100.00	3.27
009M000401	UG/KG	18000.00	U	Benz(a)anthracene	261.00	1600.00	11.25
009M000401	UG/KG	18000.00	U	Benz(a)pyrene	430.00	1600.00	11.25
009M000401	UG/KG	18000.00	U	Chrysene	384.00	2800.00	6.43
009M000401	UG/KG	18000.00	U	Dibenz(a,h)anthracene	63.40	260.00	69.23
009M000401	UG/KG	9500.00	J	Fluoranthene	600.00	5100.00	1.86
009M000401	UG/KG	3600.00	U	Fluorene	19.00	540.00	6.67
009M000401	UG/KG	18000.00	U	Naphthalene	160.00	2100.00	8.57
009M000401	UG/KG	18000.00	U	Phenanthrene	240.00	1500.00	12.00
009M000401	UG/KG	6400.00	J	Pyrene	665.00	2600.00	2.46
ERM Quotient Sum							188.15
009M000401							7.53
009M000401							1.60

**Shipyard Creek**  
**Sediment Mean ERM Quotients**

SAMPLE ID	UNITS	RESULT	VQUAL	PARAMETER	ERL	ERM	ERM QUOTIENT
009M000501	MG/KG	7.30		Arsenic (As)	8.20	70.00	0.10
009M000501	MG/KG	0.61	J	Cadmium (Cd)	1.20	9.60	0.06
009M000501	MG/KG	168.00		Chromium (Cr)	81.00	370.00	0.45
009M000501	MG/KG	90.00		Copper (Cu)	34.00	270.00	0.33
009M000501	MG/KG	74.80		Lead (Pb)	46.70	218.00	0.34
009M000501	MG/KG	0.33		Mercury (Hg)	0.15	0.71	0.46
009M000501	MG/KG	21.20		Nickel (Ni)	20.90	51.60	0.41
009M000501	MG/KG	0.34	U	Silver (Ag)	1.00	3.70	0.09
009M000501	MG/KG	261.00		Zinc (Zn)	150.00	410.00	0.64
009M000501	UG/KG	150.00		4,4'-DDE	2.20	27.00	5.56
009M000501	UG/KG	140.00		4,4'-DDT	1.58	46.10	3.04
009M000501	UG/KG	1390.00		Total PCBs	22.70	180.00	7.72
009M000501	UG/KG	130.00	U	2-Methylnaphthalene	70.00	670.00	0.19
009M000501	UG/KG	130.00	U	Acenaphthene	16.00	500.00	0.26
009M000501	UG/KG	130.00	U	Acenaphthylene	44.00	640.00	0.20
009M000501	UG/KG	130.00	U	Anthracene	85.30	1100.00	0.12
009M000501	UG/KG	140.00	J	Benz(a)anthracene	261.00	1600.00	0.09
009M000501	UG/KG	640.00	U	Benz(a)pyrene	430.00	1600.00	0.40
009M000501	UG/KG	640.00	U	Chrysene	384.00	2800.00	0.23
009M000501	UG/KG	640.00	U	Dibenz(a,h)anthracene	63.40	260.00	2.46
009M000501	UG/KG	350.00	J	Fluoranthene	600.00	5100.00	0.07
009M000501	UG/KG	130.00	U	Fluorene	19.00	540.00	0.24
009M000501	UG/KG	640.00	U	Naphthalene	160.00	2100.00	0.30
009M000501	UG/KG	640.00	U	Phenanthrene	240.00	1500.00	0.43
009M000501	UG/KG	340.00	J	Pyrene	665.00	2600.00	0.13
ERM Quotient Sum						24.34	
009M000501				Mean ERM Quotient			0.97
009M000501				Mean ERM Quotient without ND			0.78
009M000601	MG/KG	8.60	J	Arsenic (As)	8.20	70.00	0.12
009M000601	MG/KG	0.38	J	Cadmium (Cd)	1.20	9.60	0.04
009M000601	MG/KG	55.00		Chromium (Cr)	81.00	370.00	0.15
009M000601	MG/KG	9.90		Copper (Cu)	34.00	270.00	0.04
009M000601	MG/KG	2.20	U	Lead (Pb)	46.70	218.00	0.01
009M000601	MG/KG	0.04	J	Mercury (Hg)	0.15	0.71	0.06
009M000601	MG/KG	24.60		Nickel (Ni)	20.90	51.60	0.48
009M000601	MG/KG	0.35	U	Silver (Ag)	1.00	3.70	0.09
009M000601	MG/KG	56.80		Zinc (Zn)	150.00	410.00	0.14
009M000601	UG/KG	2.00		4,4'-DDE	2.20	27.00	0.07
009M000601	UG/KG	5.00	U	4,4'-DDT	1.58	46.10	0.11
009M000601	UG/KG	70.00	U	Total PCBs	22.70	180.00	0.39
009M000601	UG/KG	240.00	U	2-Methylnaphthalene	70.00	670.00	0.36
009M000601	UG/KG	240.00	U	Acenaphthene	16.00	500.00	0.48
009M000601	UG/KG	240.00	U	Acenaphthylene	44.00	640.00	0.38
009M000601	UG/KG	240.00	U	Anthracene	85.30	1100.00	0.22
009M000601	UG/KG	240.00	U	Benz(a)anthracene	261.00	1600.00	0.15
009M000601	UG/KG	240.00	U	Benz(a)pyrene	430.00	1600.00	0.15
009M000601	UG/KG	240.00	U	Chrysene	384.00	2800.00	0.09
009M000601	UG/KG	240.00	U	Dibenz(a,h)anthracene	63.40	260.00	0.92
009M000601	UG/KG	240.00	U	Fluoranthene	600.00	5100.00	0.05
009M000601	UG/KG	240.00	U	Fluorene	19.00	540.00	0.44
009M000601	UG/KG	240.00	U	Naphthalene	160.00	2100.00	0.11
009M000601	UG/KG	240.00	U	Phenanthrene	240.00	1500.00	0.16
009M000601	UG/KG	240.00	U	Pyrene	665.00	2600.00	0.09
ERM Quotient Sum						5.29	
009M000601				Mean ERM Quotient			0.21
009M000601				Mean ERM Quotient without ND			0.04

**Shipyard Creek**  
**Sediment Mean ERM Quotients**

SAMPLE ID	UNITS	RESULT	VQUAL	PARAMETER	ERL	ERM	ERM QUOTIENT
009M000701	MG/KG	5.30		Arsenic (As)	8.20	70.00	0.08
009M000701	MG/KG	1.20	J	Cadmium (Cd)	1.20	9.60	0.13
009M000701	MG/KG	36.10		Chromium (Cr)	81.00	370.00	0.10
009M000701	MG/KG	6.30	J	Copper (Cu)	34.00	270.00	0.02
009M000701	MG/KG	8.50	U	Lead (Pb)	46.70	218.00	0.04
009M000701	MG/KG	0.02	U	Mercury (Hg)	0.15	0.71	0.03
009M000701	MG/KG	21.30		Nickel (Ni)	20.90	51.60	0.41
009M000701	MG/KG	1.40	U	Silver (Ag)	1.00	3.70	0.38
009M000701	MG/KG	41.50		Zinc (Zn)	150.00	410.00	0.10
009M000701	UG/KG	2.00	U	4,4'-DDE	2.20	27.00	0.07
009M000701	UG/KG	4.00	U	4,4'-DDT	1.58	46.10	0.09
009M000701	UG/KG	70.00	U	Total PCBs	22.70	180.00	0.39
009M000701	UG/KG	220.00	U	2-Methylnaphthalene	70.00	670.00	0.33
009M000701	UG/KG	220.00	U	Acenaphthene	16.00	500.00	0.44
009M000701	UG/KG	220.00	U	Acenaphthylene	44.00	640.00	0.34
009M000701	UG/KG	220.00	U	Anthracene	85.30	1100.00	0.20
009M000701	UG/KG	220.00	U	Benz(a)anthracene	261.00	1600.00	0.14
009M000701	UG/KG	220.00	U	Benz(a)pyrene	430.00	1600.00	0.14
009M000701	UG/KG	220.00	U	Chrysene	384.00	2800.00	0.08
009M000701	UG/KG	220.00	U	Dibenz(a,h)anthracene	63.40	260.00	0.85
009M000701	UG/KG	220.00	U	Fluoranthene	600.00	5100.00	0.04
009M000701	UG/KG	220.00	U	Fluorene	19.00	540.00	0.41
009M000701	UG/KG	220.00	U	Naphthalene	160.00	2100.00	0.10
009M000701	UG/KG	220.00	U	Phenanthrene	240.00	1500.00	0.15
009M000701	UG/KG	220.00	U	Pyrene	665.00	2600.00	0.08
ERM Quotient Sum							5.13
009M000701							0.21
009M000701							0.03

009M000801	MG/KG	8.50		Arsenic (As)	8.20	70.00	0.12
009M000801	MG/KG	1.70	J	Cadmium (Cd)	1.20	9.60	0.18
009M000801	MG/KG	50.90		Chromium (Cr)	81.00	370.00	0.14
009M000801	MG/KG	13.30		Copper (Cu)	34.00	270.00	0.05
009M000801	MG/KG	10.10	U	Lead (Pb)	46.70	218.00	0.05
009M000801	MG/KG	0.03	J	Mercury (Hg)	0.15	0.71	0.04
009M000801	MG/KG	19.90		Nickel (Ni)	20.90	51.60	0.39
009M000801	MG/KG	1.60	U	Silver (Ag)	1.00	3.70	0.43
009M000801	MG/KG	82.20		Zinc (Zn)	150.00	410.00	0.20
009M000801	UG/KG	3.00	U	4,4'-DDE	2.20	27.00	0.11
009M000801	UG/KG	6.00	U	4,4'-DDT	1.58	46.10	0.13
009M000801	UG/KG	105.00	U	Total PCBs	22.70	180.00	0.58
009M000801	UG/KG	300.00	U	2-Methylnaphthalene	70.00	670.00	0.45
009M000801	UG/KG	300.00	U	Acenaphthene	16.00	500.00	0.60
009M000801	UG/KG	300.00	U	Acenaphthylene	44.00	640.00	0.47
009M000801	UG/KG	300.00	U	Anthracene	85.30	1100.00	0.27
009M000801	UG/KG	300.00	U	Benz(a)anthracene	261.00	1600.00	0.19
009M000801	UG/KG	300.00	U	Benz(a)pyrene	430.00	1600.00	0.19
009M000801	UG/KG	300.00	U	Chrysene	384.00	2800.00	0.11
009M000801	UG/KG	300.00	U	Dibenz(a,h)anthracene	63.40	260.00	1.15
009M000801	UG/KG	300.00	U	Fluoranthene	600.00	5100.00	0.06
009M000801	UG/KG	300.00	U	Fluorene	19.00	540.00	0.56
009M000801	UG/KG	300.00	U	Naphthalene	160.00	2100.00	0.14
009M000801	UG/KG	300.00	U	Phenanthrene	240.00	1500.00	0.20
009M000801	UG/KG	300.00	U	Pyrene	665.00	2600.00	0.12
ERM Quotient Sum							6.91
009M000801							0.28
009M000801							0.04

**Shipyard Creek**  
**Sediment Mean ERM Quotients**

SAMPLE ID	UNITS	RESULT	VQUAL	PARAMETER	ERL	ERM	ERM QUOTIENT
009M000901	MG/KG	0.62	J	Arsenic (As)	8.20	70.00	0.01
009M000901	MG/KG	0.15	U	Cadmium (Cd)	1.20	9.60	0.02
009M000901	MG/KG	6.50		Chromium (Cr)	81.00	370.00	0.02
009M000901	MG/KG	53.70		Copper (Cu)	34.00	270.00	0.20
009M000901	MG/KG	5.30		Lead (Pb)	46.70	218.00	0.02
009M000901	MG/KG	0.05	J	Mercury (Hg)	0.15	0.71	0.07
009M000901	MG/KG	2.80		Nickel (Ni)	20.90	51.60	0.05
009M000901	MG/KG	0.25	U	Silver (Ag)	1.00	3.70	0.07
009M000901	MG/KG	8.50		Zinc (Zn)	150.00	410.00	0.02
009M000901	UG/KG	2.00	U	4,4'-DDE	2.20	27.00	0.07
009M000901	UG/KG	3.00	J	4,4'-DDT	1.58	46.10	0.07
009M000901	UG/KG	70.00	U	Total PCBs	22.70	180.00	0.39
009M000901	UG/KG	190.00	U	2-Methylnaphthalene	70.00	670.00	0.28
009M000901	UG/KG	190.00	U	Acenaphthene	16.00	500.00	0.38
009M000901	UG/KG	190.00	U	Acenaphthylene	44.00	640.00	0.30
009M000901	UG/KG	190.00	U	Anthracene	85.30	1100.00	0.17
009M000901	UG/KG	190.00	U	Benz(a)anthracene	261.00	1600.00	0.12
009M000901	UG/KG	190.00	U	Benz(a)pyrene	430.00	1600.00	0.12
009M000901	UG/KG	190.00	U	Chrysene	384.00	2800.00	0.07
009M000901	UG/KG	190.00	U	Dibenz(a,h)anthracene	63.40	260.00	0.73
009M000901	UG/KG	190.00	U	Fluoranthene	600.00	5100.00	0.04
009M000901	UG/KG	190.00	U	Fluorene	19.00	540.00	0.35
009M000901	UG/KG	190.00	U	Naphthalene	160.00	2100.00	0.09
009M000901	UG/KG	190.00	U	Phenanthrene	240.00	1500.00	0.13
009M000901	UG/KG	190.00	U	Pyrene	665.00	2600.00	0.07
ERM Quotient Sum							3.85
009M000901	Mean ERM Quotient						0.15
009M000901	Mean ERM Quotient without ND						0.02
009M001001	MG/KG	7.70		Arsenic (As)	8.20	70.00	0.11
009M001001	MG/KG	0.70	J	Cadmium (Cd)	1.20	9.60	0.07
009M001001	MG/KG	45.50		Chromium (Cr)	81.00	370.00	0.12
009M001001	MG/KG	42.80		Copper (Cu)	34.00	270.00	0.16
009M001001	MG/KG	15.80	J	Lead (Pb)	46.70	218.00	0.07
009M001001	MG/KG	0.13		Mercury (Hg)	0.15	0.71	0.18
009M001001	MG/KG	15.80		Nickel (Ni)	20.90	51.60	0.31
009M001001	MG/KG	1.00	U	Silver (Ag)	1.00	3.70	0.27
009M001001	MG/KG	111.00		Zinc (Zn)	150.00	410.00	0.27
009M001001	UG/KG	11.00		4,4'-DDE	2.20	27.00	0.41
009M001001	UG/KG	16.00		4,4'-DDT	1.58	46.10	0.35
009M001001	UG/KG	300.00		Total PCBs	22.70	180.00	1.67
009M001001	UG/KG	280.00	U	2-Methylnaphthalene	70.00	670.00	0.42
009M001001	UG/KG	280.00	U	Acenaphthene	16.00	500.00	0.56
009M001001	UG/KG	280.00	U	Acenaphthylene	44.00	640.00	0.44
009M001001	UG/KG	280.00	U	Anthracene	85.30	1100.00	0.25
009M001001	UG/KG	280.00	U	Benz(a)anthracene	261.00	1600.00	0.18
009M001001	UG/KG	280.00	U	Benz(a)pyrene	430.00	1600.00	0.18
009M001001	UG/KG	280.00	U	Chrysene	384.00	2800.00	0.10
009M001001	UG/KG	280.00	U	Dibenz(a,h)anthracene	63.40	260.00	1.08
009M001001	UG/KG	280.00	U	Fluoranthene	600.00	5100.00	0.05
009M001001	UG/KG	280.00	U	Fluorene	19.00	540.00	0.52
009M001001	UG/KG	280.00	U	Naphthalene	160.00	2100.00	0.13
009M001001	UG/KG	280.00	U	Phenanthrene	240.00	1500.00	0.19
009M001001	UG/KG	280.00	U	Pyrene	665.00	2600.00	0.11
ERM Quotient Sum							8.19
009M001001	Mean ERM Quotient						0.33
009M001001	Mean ERM Quotient without ND						0.15

**Shipyard Creek**  
**Sediment Mean ERM Quotients**

SAMPLE ID	UNITS	RESULT	VQUAL	PARAMETER	ERL	ERM	ERM QUOTIENT
009M001101	MG/KG	13.30		Arsenic (As)	8.20	70.00	0.19
009M001101	MG/KG	0.14	U	Cadmium (Cd)	1.20	9.60	0.01
009M001101	MG/KG	47.50		Chromium (Cr)	81.00	370.00	0.13
009M001101	MG/KG	18.70		Copper (Cu)	34.00	270.00	0.07
009M001101	MG/KG	22.60		Lead (Pb)	46.70	218.00	0.10
009M001101	MG/KG	0.12		Mercury (Hg)	0.15	0.71	0.17
009M001101	MG/KG	17.70		Nickel (Ni)	20.90	51.60	0.34
009M001101	MG/KG	0.24	U	Silver (Ag)	1.00	3.70	0.06
009M001101	MG/KG	118.00		Zinc (Zn)	150.00	410.00	0.29
009M001101	UG/KG	3.00	J	4,4'-DDE	2.20	27.00	0.11
009M001101	UG/KG	8.00	U	4,4'-DDT	1.58	46.10	0.17
009M001101	UG/KG	140.00	U	Total PCBs	22.70	180.00	0.78
009M001101	UG/KG	80.00	U	2-Methylnaphthalene	70.00	670.00	0.12
009M001101	UG/KG	80.00	U	Acenaphthene	16.00	500.00	0.16
009M001101	UG/KG	80.00	U	Acenaphthylene	44.00	640.00	0.13
009M001101	UG/KG	80.00	U	Anthracene	85.30	1100.00	0.07
009M001101	UG/KG	420.00	U	Benzo(a)anthracene	261.00	1600.00	0.26
009M001101	UG/KG	420.00	U	Benzo(a)pyrene	430.00	1600.00	0.26
009M001101	UG/KG	420.00	U	Chrysene	384.00	2800.00	0.15
009M001101	UG/KG	420.00	U	Dibenz(a,h)anthracene	63.40	260.00	1.62
009M001101	UG/KG	420.00	U	Fluoranthene	600.00	5100.00	0.08
009M001101	UG/KG	80.00	U	Fluorene	19.00	540.00	0.15
009M001101	UG/KG	420.00	U	Naphthalene	160.00	2100.00	0.20
009M001101	UG/KG	420.00	U	Phenanthrene	240.00	1500.00	0.28
009M001101	UG/KG	420.00	U	Pyrene	665.00	2600.00	0.16
ERM Quotient Sum							6.07
009M001101							0.24
009M001101							0.06
ERM Quotient Sum							4.22
009M001201	MG/KG	6.30		Arsenic (As)	8.20	70.00	0.09
009M001201	MG/KG	0.24	J	Cadmium (Cd)	1.20	9.60	0.03
009M001201	MG/KG	25.90		Chromium (Cr)	81.00	370.00	0.07
009M001201	MG/KG	9.10		Copper (Cu)	34.00	270.00	0.03
009M001201	MG/KG	1.90	U	Lead (Pb)	46.70	218.00	0.01
009M001201	MG/KG	0.03	J	Mercury (Hg)	0.15	0.71	0.04
009M001201	MG/KG	12.90		Nickel (Ni)	20.90	51.60	0.25
009M001201	MG/KG	0.30	U	Silver (Ag)	1.00	3.70	0.08
009M001201	MG/KG	29.30		Zinc (Zn)	150.00	410.00	0.07
009M001201	UG/KG	2.00	U	4,4'-DDE	2.20	27.00	0.07
009M001201	UG/KG	4.00	U	4,4'-DDT	1.58	46.10	0.09
009M001201	UG/KG	70.00	U	Total PCBs	22.70	180.00	0.39
009M001201	UG/KG	200.00	U	2-Methylnaphthalene	70.00	670.00	0.30
009M001201	UG/KG	200.00	U	Acenaphthene	16.00	500.00	0.40
009M001201	UG/KG	200.00	U	Acenaphthylene	44.00	640.00	0.31
009M001201	UG/KG	200.00	U	Anthracene	85.30	1100.00	0.18
009M001201	UG/KG	200.00	U	Benzo(a)anthracene	261.00	1600.00	0.13
009M001201	UG/KG	200.00	U	Benzo(a)pyrene	430.00	1600.00	0.13
009M001201	UG/KG	200.00	U	Chrysene	384.00	2800.00	0.07
009M001201	UG/KG	200.00	U	Dibenz(a,h)anthracene	63.40	260.00	0.77
009M001201	UG/KG	200.00	U	Fluoranthene	600.00	5100.00	0.04
009M001201	UG/KG	200.00	U	Fluorene	19.00	540.00	0.37
009M001201	UG/KG	200.00	U	Naphthalene	160.00	2100.00	0.10
009M001201	UG/KG	200.00	U	Phenanthrene	240.00	1500.00	0.13
009M001201	UG/KG	200.00	U	Pyrene	665.00	2600.00	0.08
ERM Quotient Sum							0.17
009M001201							0.02

**Shipyard Creek**  
**Sediment Mean ERM Quotients**

SAMPLE ID	UNITS	RESULT	VQUAL	PARAMETER	ERL	ERM	ERM QUOTIENT
009M001301	MG/KG	19.60		Arsenic (As)	8.20	70.00	0.28
009M001301	MG/KG	0.11	U	Cadmium (Cd)	1.20	9.60	0.01
009M001301	MG/KG	59.20		Chromium (Cr)	81.00	370.00	0.16
009M001301	MG/KG	46.00		Copper (Cu)	34.00	270.00	0.17
009M001301	MG/KG	34.40		Lead (Pb)	46.70	218.00	0.16
009M001301	MG/KG	0.16		Mercury (Hg)	0.15	0.71	0.23
009M001301	MG/KG	18.60		Nickel (Ni)	20.90	51.60	0.36
009M001301	MG/KG	0.19	U	Silver (Ag)	1.00	3.70	0.05
009M001301	MG/KG	126.00		Zinc (Zn)	150.00	410.00	0.31
009M001301	UG/KG	36.00		4,4'-DDE	2.20	27.00	1.33
009M001301	UG/KG	18.00		4,4'-DDT	1.58	46.10	0.39
009M001301	UG/KG	350.00		Total PCBs	22.70	180.00	1.94
009M001301	UG/KG	70.00	U	2-Methylnaphthalene	70.00	670.00	0.10
009M001301	UG/KG	70.00	U	Acenaphthene	16.00	500.00	0.14
009M001301	UG/KG	70.00	U	Acenaphthylene	44.00	640.00	0.11
009M001301	UG/KG	70.00	U	Anthracene	85.30	1100.00	0.06
009M001301	UG/KG	350.00	U	Benz(a)anthracene	261.00	1600.00	0.22
009M001301	UG/KG	350.00	U	Benz(a)pyrene	430.00	1600.00	0.22
009M001301	UG/KG	350.00	U	Chrysene	384.00	2800.00	0.13
009M001301	UG/KG	350.00	U	Dibenz(a,h)anthracene	63.40	260.00	1.35
009M001301	UG/KG	350.00	U	Fluoranthene	600.00	5100.00	0.07
009M001301	UG/KG	70.00	U	Fluorene	19.00	540.00	0.13
009M001301	UG/KG	350.00	U	Naphthalene	160.00	2100.00	0.17
009M001301	UG/KG	350.00	U	Phenanthrene	240.00	1500.00	0.23
009M001301	UG/KG	350.00	U	Pyrene	665.00	2600.00	0.13
ERM Quotient Sum							8.45
009M001301				Mean ERM Quotient			0.34
009M001301				Mean ERM Quotient without ND			0.21
009M001401	MG/KG	14.50		Arsenic (As)	8.20	70.00	0.21
009M001401	MG/KG	0.70	U	Cadmium (Cd)	1.20	9.60	0.07
009M001401	MG/KG	47.50		Chromium (Cr)	81.00	370.00	0.13
009M001401	MG/KG	31.70		Copper (Cu)	34.00	270.00	0.12
009M001401	MG/KG	92.20		Lead (Pb)	46.70	218.00	0.42
009M001401	MG/KG	0.26		Mercury (Hg)	0.15	0.71	0.37
009M001401	MG/KG	14.60		Nickel (Ni)	20.90	51.60	0.28
009M001401	MG/KG	1.20	U	Silver (Ag)	1.00	3.70	0.32
009M001401	MG/KG	147.00		Zinc (Zn)	150.00	410.00	0.36
009M001401	UG/KG	13.00		4,4'-DDE	2.20	27.00	0.48
009M001401	UG/KG	29.00		4,4'-DDT	1.58	46.10	0.63
009M001401	UG/KG	480.00		Total PCBs	22.70	180.00	2.67
009M001401	UG/KG	80.00	U	2-Methylnaphthalene	70.00	670.00	0.12
009M001401	UG/KG	230.00		Acenaphthene	16.00	500.00	0.46
009M001401	UG/KG	80.00	U	Acenaphthylene	44.00	640.00	0.13
009M001401	UG/KG	80.00	U	Anthracene	85.30	1100.00	0.07
009M001401	UG/KG	410.00	U	Benz(a)anthracene	261.00	1600.00	0.26
009M001401	UG/KG	410.00	U	Benz(a)pyrene	430.00	1600.00	0.26
009M001401	UG/KG	140.00	J	Chrysene	384.00	2800.00	0.05
009M001401	UG/KG	410.00	U	Dibenz(a,h)anthracene	63.40	260.00	1.58
009M001401	UG/KG	120.00	J	Fluoranthene	600.00	5100.00	0.02
009M001401	UG/KG	160.00		Fluorene	19.00	540.00	0.30
009M001401	UG/KG	410.00	U	Naphthalene	160.00	2100.00	0.20
009M001401	UG/KG	150.00	J	Phenanthrene	240.00	1500.00	0.10
009M001401	UG/KG	110.00	J	Pyrene	665.00	2600.00	0.04
ERM Quotient Sum							9.63
009M001401				Mean ERM Quotient			0.39
009M001401				Mean ERM Quotient without ND			0.27

**Shipyard Creek**  
**Sediment Mean ERM Quotients**

SAMPLE ID	UNITS	RESULT	VQUAL	PARAMETER	ERL	ERM	ERM QUOTIENT
009M001501	MG/KG	8.50		Arsenic (As)	8.20	70.00	0.12
009M001501	MG/KG	0.62		Cadmium (Cd)	1.20	9.60	0.06
009M001501	MG/KG	40.80		Chromium (Cr)	81.00	370.00	0.11
009M001501	MG/KG	25.40		Copper (Cu)	34.00	270.00	0.09
009M001501	MG/KG	74.20		Lead (Pb)	46.70	218.00	0.34
009M001501	MG/KG	0.15		Mercury (Hg)	0.15	0.71	0.21
009M001501	MG/KG	17.90		Nickel (Ni)	20.90	51.60	0.35
009M001501	MG/KG	0.18	U	Silver (Ag)	1.00	3.70	0.05
009M001501	MG/KG	131.00		Zinc (Zn)	150.00	410.00	0.32
009M001501	UG/KG	15.00		4,4'-DDE	2.20	27.00	0.56
009M001501	UG/KG	51.00		4,4'-DDT	1.58	46.10	1.11
009M001501	UG/KG	1190.00		Total PCBs	22.70	180.00	6.61
009M001501	UG/KG	70.00	U	2-Methylnaphthalene	70.00	670.00	0.10
009M001501	UG/KG	70.00	U	Acenaphthene	16.00	500.00	0.14
009M001501	UG/KG	70.00	U	Acenaphthylene	44.00	640.00	0.11
009M001501	UG/KG	70.00	U	Anthracene	85.30	1100.00	0.06
009M001501	UG/KG	350.00	U	Benz(a)anthracene	261.00	1600.00	0.22
009M001501	UG/KG	350.00	U	Benz(a)pyrene	430.00	1600.00	0.22
009M001501	UG/KG	350.00	U	Chrysene	384.00	2800.00	0.13
009M001501	UG/KG	350.00	U	Dibenz(a,h)anthracene	63.40	260.00	1.35
009M001501	UG/KG	100.00	J	Fluoranthene	600.00	5100.00	0.02
009M001501	UG/KG	70.00	U	Fluorene	19.00	540.00	0.13
009M001501	UG/KG	350.00	U	Naphthalene	160.00	2100.00	0.17
009M001501	UG/KG	350.00	U	Phenanthrene	240.00	1500.00	0.23
009M001501	UG/KG	130.00	J	Pyrene	665.00	2600.00	0.05
ERM Quotient Sum							12.86
009M001501							0.51
009M001501							0.40
009N001001	MG/KG	8.10	U	Arsenic (As)	8.20	70.00	0.12
009N001001	MG/KG	0.62	UJ	Cadmium (Cd)	1.20	9.60	0.06
009N001001	MG/KG	55.70		Chromium (Cr)	81.00	370.00	0.15
009N001001	MG/KG	51.90	J	Copper (Cu)	34.00	270.00	0.19
009N001001	MG/KG	24.60	UJ	Lead (Pb)	46.70	218.00	0.11
009N001001	MG/KG	0.09	UJ	Mercury (Hg)	0.15	0.71	0.13
009N001001	MG/KG	18.90		Nickel (Ni)	20.90	51.60	0.37
009N001001	MG/KG	1.10	UJ	Silver (Ag)	1.00	3.70	0.30
009N001001	MG/KG	95.40		Zinc (Zn)	150.00	410.00	0.23
009N001001	UG/KG	6.40		4,4'-DDE	2.20	27.00	0.24
009N001001	UG/KG	3.30	U	4,4'-DDT	1.58	46.10	0.07
009N001001	UG/KG	93.30		Total PCBs	22.70	180.00	0.52
009N001001	UG/KG	330.00	U	2-Methylnaphthalene	70.00	670.00	0.49
009N001001	UG/KG	330.00	U	Acenaphthene	16.00	500.00	0.66
009N001001	UG/KG	330.00	U	Acenaphthylene	44.00	640.00	0.52
009N001001	UG/KG	330.00	U	Anthracene	85.30	1100.00	0.30
009N001001	UG/KG	330.00	U	Benz(a)anthracene	261.00	1600.00	0.21
009N001001	UG/KG	330.00	U	Benz(a)pyrene	430.00	1600.00	0.21
009N001001	UG/KG	330.00	U	Chrysene	384.00	2800.00	0.12
009N001001	UG/KG	330.00	U	Dibenz(a,h)anthracene	63.40	260.00	1.27
009N001001	UG/KG	61.50	J	Fluoranthene	600.00	5100.00	0.01
009N001001	UG/KG	330.00	U	Fluorene	19.00	540.00	0.61
009N001001	UG/KG	330.00	U	Naphthalene	160.00	2100.00	0.16
009N001001	UG/KG	330.00	U	Phenanthrene	240.00	1500.00	0.22
009N001001	UG/KG	64.90	J	Pyrene	665.00	2600.00	0.02
ERM Quotient Sum							7.28
009N001001							0.29
009N001001							0.07

**Shipyard Creek**  
**Sediment Mean ERM Quotients**

SAMPLE ID	UNITS	RESULT	VQUAL	PARAMETER	ERL	ERM	ERM QUOTIENT
009N001501	MG/KG	15.60		Arsenic (As)	8.20	70.00	0.22
009N001501	MG/KG	0.87	J	Cadmium (Cd)	1.20	9.60	0.09
009N001501	MG/KG	71.50		Chromium (Cr)	81.00	370.00	0.19
009N001501	MG/KG	22.80	UJ	Copper (Cu)	34.00	270.00	0.08
009N001501	MG/KG	54.90		Lead (Pb)	46.70	218.00	0.25
009N001501	MG/KG	0.11	UJ	Mercury (Hg)	0.15	0.71	0.15
009N001501	MG/KG	24.50		Nickel (Ni)	20.90	51.60	0.47
009N001501	MG/KG	0.37	UJ	Silver (Ag)	1.00	3.70	0.10
009N001501	MG/KG	125.00		Zinc (Zn)	150.00	410.00	0.30
009N001501	UG/KG	3.70	J	4,4'-DDE	2.20	27.00	0.14
009N001501	UG/KG	3.30	U	4,4'-DDT	1.58	46.10	0.07
009N001501	UG/KG	352.00		Total PCBs	22.70	180.00	1.96
009N001501	UG/KG	330.00	U	2-Methylnaphthalene	70.00	670.00	0.49
009N001501	UG/KG	330.00	U	Acenaphthene	16.00	500.00	0.66
009N001501	UG/KG	330.00	U	Acenaphthylene	44.00	640.00	0.52
009N001501	UG/KG	330.00	U	Anthracene	85.30	1100.00	0.30
009N001501	UG/KG	75.00	J	Benzo(a)anthracene	261.00	1600.00	0.05
009N001501	UG/KG	330.00	U	Benzo(a)pyrene	430.00	1600.00	0.21
009N001501	UG/KG	90.00	J	Chrysene	384.00	2800.00	0.03
009N001501	UG/KG	330.00	U	Dibenz(a,h)anthracene	63.40	260.00	1.27
009N001501	UG/KG	148.00	J	Fluoranthene	600.00	5100.00	0.03
009N001501	UG/KG	330.00	U	Fluorene	19.00	540.00	0.61
009N001501	UG/KG	330.00	U	Naphthalene	160.00	2100.00	0.16
009N001501	UG/KG	330.00	U	Phenanthrene	240.00	1500.00	0.22
009N001501	UG/KG	162.00	J	Pyrene	665.00	2600.00	0.06
ERM Quotient Sum							8.64
009N001501							0.35
009N001501							0.15
196M000101	MG/KG	6.10		Arsenic (As)	8.20	70.00	0.09
196M000101	MG/KG	0.19	J	Cadmium (Cd)	1.20	9.60	0.02
196M000101	MG/KG	45.50	J	Chromium (Cr)	81.00	370.00	0.12
196M000101	MG/KG	16.30		Copper (Cu)	34.00	270.00	0.06
196M000101	MG/KG	18.40		Lead (Pb)	46.70	218.00	0.08
196M000101	MG/KG	0.04		Mercury (Hg)	0.15	0.71	0.06
196M000101	MG/KG	8.30		Nickel (Ni)	20.90	51.60	0.16
196M000101	MG/KG	0.12	U	Silver (Ag)	1.00	3.70	0.03
196M000101	MG/KG	63.00	J	Zinc (Zn)	150.00	410.00	0.15
196M000101	UG/KG	64.00	U	4,4'-DDE	2.20	27.00	2.37
196M000101	UG/KG	64.00	U	4,4'-DDT	1.58	46.10	1.39
196M000101	UG/KG	294.00	U	Total PCBs	22.70	180.00	1.63
196M000101	UG/KG	52.00	J	2-Methylnaphthalene	70.00	670.00	0.08
196M000101	UG/KG	850.00	U	Acenaphthene	16.00	500.00	1.70
196M000101	UG/KG	94.00	J	Acenaphthylene	44.00	640.00	0.15
196M000101	UG/KG	850.00	U	Anthracene	85.30	1100.00	0.77
196M000101	UG/KG	860.00		Benzo(a)anthracene	261.00	1600.00	0.54
196M000101	UG/KG	1600.00		Benzo(a)pyrene	430.00	1600.00	1.00
196M000101	UG/KG	970.00		Chrysene	384.00	2800.00	0.35
196M000101	UG/KG	850.00	U	Dibenz(a,h)anthracene	63.40	260.00	3.27
196M000101	UG/KG	2400.00		Fluoranthene	600.00	5100.00	0.47
196M000101	UG/KG	850.00	U	Fluorene	19.00	540.00	1.57
196M000101	UG/KG	200.00	J	Naphthalene	160.00	2100.00	0.10
196M000101	UG/KG	850.00	U	Phenanthrene	240.00	1500.00	0.57
196M000101	UG/KG	6300.00		Pyrene	665.00	2600.00	2.42
ERM Quotient Sum							19.15
196M000101							0.77
196M000101							0.23

**Shipyard Creek**  
**Sediment Mean ERM Quotients**

SAMPLE ID	UNITS	RESULT	VQUAL	PARAMETER	ERL	ERM	ERM QUOTIENT
196M000102	MG/KG	6.50		Arsenic (As)	8.20	70.00	0.09
196M000102	MG/KG	0.14	J	Cadmium (Cd)	1.20	9.60	0.01
196M000102	MG/KG	18.30	J	Chromium (Cr)	81.00	370.00	0.05
196M000102	MG/KG	11.90		Copper (Cu)	34.00	270.00	0.04
196M000102	MG/KG	20.30		Lead (Pb)	46.70	218.00	0.09
196M000102	MG/KG	0.12		Mercury (Hg)	0.15	0.71	0.17
196M000102	MG/KG	7.50		Nickel (Ni)	20.90	51.60	0.15
196M000102	MG/KG	0.12	U	Silver (Ag)	1.00	3.70	0.03
196M000102	MG/KG	40.40	J	Zinc (Zn)	150.00	410.00	0.10
196M000102	UG/KG	62.00	U	4,4'-DDE	2.20	27.00	2.30
196M000102	UG/KG	62.00	U	4,4'-DDT	1.58	46.10	1.34
196M000102	UG/KG	287.00	U	Total PCBs	22.70	180.00	1.59
196M000102	UG/KG	820.00	U	2-Methylnaphthalene	70.00	670.00	1.22
196M000102	UG/KG	820.00	U	Acenaphthene	16.00	500.00	1.64
196M000102	UG/KG	48.00	J	Acenaphthylene	44.00	640.00	0.08
196M000102	UG/KG	87.00	J	Anthracene	85.30	1100.00	0.08
196M000102	UG/KG	360.00	J	Benzo(a)anthracene	261.00	1600.00	0.23
196M000102	UG/KG	290.00	J	Benzo(a)pyrene	430.00	1600.00	0.18
196M000102	UG/KG	180.00	J	Chrysene	384.00	2800.00	0.06
196M000102	UG/KG	820.00	U	Dibenz(a,h)anthracene	63.40	260.00	3.15
196M000102	UG/KG	2000.00		Fluoranthene	600.00	5100.00	0.39
196M000102	UG/KG	820.00	U	Fluorene	19.00	540.00	1.52
196M000102	UG/KG	150.00	J	Naphthalene	160.00	2100.00	0.07
196M000102	UG/KG	81.00	J	Phenanthrene	240.00	1500.00	0.05
196M000102	UG/KG	2700.00		Pyrene	665.00	2600.00	1.04
				ERM Quotient Sum			15.69
196M000102				Mean ERM Quotient			0.63
196M000102				Mean ERM Quotient without ND			0.12
196M000103	MG/KG	5.60		Arsenic (As)	8.20	70.00	0.08
196M000103	MG/KG	0.10	J	Cadmium (Cd)	1.20	9.60	0.01
196M000103	MG/KG	11.80	J	Chromium (Cr)	81.00	370.00	0.03
196M000103	MG/KG	10.90		Copper (Cu)	34.00	270.00	0.04
196M000103	MG/KG	17.30		Lead (Pb)	46.70	218.00	0.08
196M000103	MG/KG	0.06		Mercury (Hg)	0.15	0.71	0.08
196M000103	MG/KG	4.80		Nickel (Ni)	20.90	51.60	0.09
196M000103	MG/KG	0.12	U	Silver (Ag)	1.00	3.70	0.03
196M000103	MG/KG	44.50	J	Zinc (Zn)	150.00	410.00	0.11
196M000103	UG/KG	57.00	U	4,4'-DDE	2.20	27.00	2.11
196M000103	UG/KG	57.00	U	4,4'-DDT	1.58	46.10	1.24
196M000103	UG/KG	301.00	U	Total PCBs	22.70	180.00	1.67
196M000103	UG/KG	40.00	J	2-Methylnaphthalene	70.00	670.00	0.06
196M000103	UG/KG	780.00	U	Acenaphthene	16.00	500.00	1.56
196M000103	UG/KG	46.00	J	Acenaphthylene	44.00	640.00	0.07
196M000103	UG/KG	64.00	J	Anthracene	85.30	1100.00	0.06
196M000103	UG/KG	220.00	J	Benzo(a)anthracene	261.00	1600.00	0.14
196M000103	UG/KG	220.00	J	Benzo(a)pyrene	430.00	1600.00	0.14
196M000103	UG/KG	190.00	J	Chrysene	384.00	2800.00	0.07
196M000103	UG/KG	80.00	J	Dibenz(a,h)anthracene	63.40	260.00	0.31
196M000103	UG/KG	230.00	J	Fluoranthene	600.00	5100.00	0.05
196M000103	UG/KG	780.00	U	Fluorene	19.00	540.00	1.44
196M000103	UG/KG	140.00	J	Naphthalene	160.00	2100.00	0.07
196M000103	UG/KG	79.00	J	Phenanthrene	240.00	1500.00	0.05
196M000103	UG/KG	1100.00		Pyrene	665.00	2600.00	0.42
				ERM Quotient Sum			10.01
196M000103				Mean ERM Quotient			0.40
196M000103				Mean ERM Quotient without ND			0.08

**Shipyard Creek**  
**Sediment Mean ERM Quotients**

SAMPLE ID	UNITS	RESULT	VQUAL	PARAMETER	ERL	ERM	ERM QUOTIENT
196M000201	MG/KG	6.70		Arsenic (As)	8.20	70.00	0.10
196M000201	MG/KG	0.05	J	Cadmium (Cd)	1.20	9.60	0.01
196M000201	MG/KG	38.40	J	Chromium (Cr)	81.00	370.00	0.10
196M000201	MG/KG	30.60		Copper (Cu)	34.00	270.00	0.11
196M000201	MG/KG	28.00		Lead (Pb)	46.70	218.00	0.13
196M000201	MG/KG	0.10		Mercury (Hg)	0.15	0.71	0.14
196M000201	MG/KG	9.50		Nickel (Ni)	20.90	51.60	0.18
196M000201	MG/KG	0.12	U	Silver (Ag)	1.00	3.70	0.03
196M000201	MG/KG	69.90	J	Zinc (Zn)	150.00	410.00	0.17
196M000201	UG/KG	60.00	U	4,4'-DDE	2.20	27.00	2.22
196M000201	UG/KG	60.00	U	4,4'-DDT	1.58	46.10	1.30
196M000201	UG/KG	398.50	J	Total PCBs	22.70	180.00	2.21
196M000201	UG/KG	52.00	J	2-Methylnaphthalene	70.00	670.00	0.08
196M000201	UG/KG	720.00	U	Acenaphthene	16.00	500.00	1.44
196M000201	UG/KG	62.00	J	Acenaphthylene	44.00	640.00	0.10
196M000201	UG/KG	110.00	J	Anthracene	85.30	1100.00	0.10
196M000201	UG/KG	250.00	J	Benz(a)anthracene	261.00	1600.00	0.16
196M000201	UG/KG	590.00	J	Benz(a)pyrene	430.00	1600.00	0.37
196M000201	UG/KG	220.00	J	Chrysene	384.00	2800.00	0.08
196M000201	UG/KG	720.00	U	Dibenz(a,h)anthracene	63.40	260.00	2.77
196M000201	UG/KG	450.00	J	Fluoranthene	600.00	5100.00	0.09
196M000201	UG/KG	720.00	U	Fluorene	19.00	540.00	1.33
196M000201	UG/KG	97.00	J	Naphthalene	160.00	2100.00	0.05
196M000201	UG/KG	70.00	J	Phenanthrene	240.00	1500.00	0.05
196M000201	UG/KG	1600.00		Pyrene	665.00	2600.00	0.62
				ERM Quotient Sum			13.93
196M000201				Mean ERM Quotient			0.56
196M000201				Mean ERM Quotient without ND			0.19
196M000202	MG/KG	14.90		Arsenic (As)	8.20	70.00	0.21
196M000202	MG/KG	0.07	J	Cadmium (Cd)	1.20	9.60	0.01
196M000202	MG/KG	12.90	J	Chromium (Cr)	81.00	370.00	0.03
196M000202	MG/KG	13.20		Copper (Cu)	34.00	270.00	0.05
196M000202	MG/KG	150.00		Lead (Pb)	46.70	218.00	0.69
196M000202	MG/KG	0.04		Mercury (Hg)	0.15	0.71	0.06
196M000202	MG/KG	6.10		Nickel (Ni)	20.90	51.60	0.12
196M000202	MG/KG	0.12	U	Silver (Ag)	1.00	3.70	0.03
196M000202	MG/KG	74.10	J	Zinc (Zn)	150.00	410.00	0.18
196M000202	UG/KG	72.00	U	4,4'-DDE	2.20	27.00	2.67
196M000202	UG/KG	72.00	U	4,4'-DDT	1.58	46.10	1.56
196M000202	UG/KG	336.00	U	Total PCBs	22.70	180.00	1.87
196M000202	UG/KG	920.00	U	2-Methylnaphthalene	70.00	670.00	1.37
196M000202	UG/KG	920.00	U	Acenaphthene	16.00	500.00	1.84
196M000202	UG/KG	920.00	U	Acenaphthylene	44.00	640.00	1.44
196M000202	UG/KG	46.00	J	Anthracene	85.30	1100.00	0.04
196M000202	UG/KG	97.00	J	Benz(a)anthracene	261.00	1600.00	0.06
196M000202	UG/KG	120.00	J	Benz(a)pyrene	430.00	1600.00	0.08
196M000202	UG/KG	91.00	J	Chrysene	384.00	2800.00	0.03
196M000202	UG/KG	920.00	U	Dibenz(a,h)anthracene	63.40	260.00	3.54
196M000202	UG/KG	210.00	J	Fluoranthene	600.00	5100.00	0.04
196M000202	UG/KG	920.00	U	Fluorene	19.00	540.00	1.70
196M000202	UG/KG	160.00	J	Naphthalene	160.00	2100.00	0.08
196M000202	UG/KG	85.00	J	Phenanthrene	240.00	1500.00	0.06
196M000202	UG/KG	380.00	J	Pyrene	665.00	2600.00	0.15
				ERM Quotient Sum			17.90
196M000202				Mean ERM Quotient			0.72
196M000202				Mean ERM Quotient without ND			0.08

**Shipyard Creek**  
**Sediment Mean ERM Quotients**

SAMPLE ID	UNITS	RESULT	VQUAL	PARAMETER	ERL	ERM	ERM QUOTIENT
196M000203	MG/KG	8.70		Arsenic (As)	8.20	70.00	0.12
196M000203	MG/KG	0.03	U	Cadmium (Cd)	1.20	9.60	0.00
196M000203	MG/KG	10.70	J	Chromium (Cr)	81.00	370.00	0.03
196M000203	MG/KG	12.30		Copper (Cu)	34.00	270.00	0.05
196M000203	MG/KG	27.20		Lead (Pb)	46.70	218.00	0.12
196M000203	MG/KG	0.04		Mercury (Hg)	0.15	0.71	0.06
196M000203	MG/KG	3.80	J	Nickel (Ni)	20.90	51.60	0.07
196M000203	MG/KG	0.12	U	Silver (Ag)	1.00	3.70	0.03
196M000203	MG/KG	42.00	J	Zinc (Zn)	150.00	410.00	0.10
196M000203	UG/KG	59.00	U	4,4'-DDE	2.20	27.00	2.19
196M000203	UG/KG	59.00	U	4,4'-DDT	1.58	46.10	1.28
196M000203	UG/KG	262.50	U	Total PCBs	22.70	180.00	1.46
196M000203	UG/KG	770.00	U	2-Methylnaphthalene	70.00	670.00	1.15
196M000203	UG/KG	770.00	U	Acenaphthene	16.00	500.00	1.54
196M000203	UG/KG	46.00	J	Acenaphthylene	44.00	640.00	0.07
196M000203	UG/KG	47.00	J	Anthracene	85.30	1100.00	0.04
196M000203	UG/KG	72.00	J	Benz(a)anthracene	261.00	1600.00	0.05
196M000203	UG/KG	82.00	J	Benz(a)pyrene	430.00	1600.00	0.05
196M000203	UG/KG	62.00	J	Chrysene	384.00	2800.00	0.02
196M000203	UG/KG	770.00	U	Dibenz(a,h)anthracene	63.40	260.00	2.96
196M000203	UG/KG	140.00	J	Fluoranthene	600.00	5100.00	0.03
196M000203	UG/KG	770.00	U	Fluorene	19.00	540.00	1.43
196M000203	UG/KG	200.00	J	Naphthalene	160.00	2100.00	0.10
196M000203	UG/KG	130.00	J	Phenanthrene	240.00	1500.00	0.09
196M000203	UG/KG	770.00	U	Pyrene	665.00	2600.00	0.30
ERM Quotient Sum							13.33
196M000203				Mean ERM Quotient			0.53
196M000203				Mean ERM Quotient without ND			0.04
196M000301	MG/KG	3.60		Arsenic (As)	8.20	70.00	0.05
196M000301	MG/KG	0.21	J	Cadmium (Cd)	1.20	9.60	0.02
196M000301	MG/KG	45.40	J	Chromium (Cr)	81.00	370.00	0.12
196M000301	MG/KG	31.30		Copper (Cu)	34.00	270.00	0.12
196M000301	MG/KG	33.60		Lead (Pb)	46.70	218.00	0.15
196M000301	MG/KG	0.19		Mercury (Hg)	0.15	0.71	0.27
196M000301	MG/KG	8.30		Nickel (Ni)	20.90	51.60	0.16
196M000301	MG/KG	0.12	U	Silver (Ag)	1.00	3.70	0.03
196M000301	MG/KG	105.00	J	Zinc (Zn)	150.00	410.00	0.26
196M000301	UG/KG	50.00	U	4,4'-DDE	2.20	27.00	1.85
196M000301	UG/KG	50.00	U	4,4'-DDT	1.58	46.10	1.08
196M000301	UG/KG	380.50		Total PCBs	22.70	180.00	2.11
196M000301	UG/KG	39.00	J	2-Methylnaphthalene	70.00	670.00	0.06
196M000301	UG/KG	660.00	U	Acenaphthene	16.00	500.00	1.32
196M000301	UG/KG	660.00	U	Acenaphthylene	44.00	640.00	1.03
196M000301	UG/KG	41.00	J	Anthracene	85.30	1100.00	0.04
196M000301	UG/KG	130.00	J	Benz(a)anthracene	261.00	1600.00	0.08
196M000301	UG/KG	130.00	J	Benz(a)pyrene	430.00	1600.00	0.08
196M000301	UG/KG	170.00	J	Chrysene	384.00	2800.00	0.06
196M000301	UG/KG	44.00	J	Dibenz(a,h)anthracene	63.40	260.00	0.17
196M000301	UG/KG	270.00	J	Fluoranthene	600.00	5100.00	0.05
196M000301	UG/KG	660.00	U	Fluorene	19.00	540.00	1.22
196M000301	UG/KG	56.00	J	Naphthalene	160.00	2100.00	0.03
196M000301	UG/KG	78.00	J	Phenanthrene	240.00	1500.00	0.05
196M000301	UG/KG	320.00	J	Pyrene	665.00	2600.00	0.12
ERM Quotient Sum							10.55
196M000301				Mean ERM Quotient			0.42
196M000301				Mean ERM Quotient without ND			0.16

**Shipyard Creek**  
**Sediment Mean ERM Quotients**

SAMPLE ID	UNITS	RESULT	VQUAL	PARAMETER	ERL	ERM	ERM QUOTIENT
196M000302	MG/KG	5.00		Arsenic (As)	8.20	70.00	0.07
196M000302	MG/KG	0.38	J	Cadmium (Cd)	1.20	9.60	0.04
196M000302	MG/KG	27.80	J	Chromium (Cr)	81.00	370.00	0.08
196M000302	MG/KG	29.10		Copper (Cu)	34.00	270.00	0.11
196M000302	MG/KG	25.60		Lead (Pb)	46.70	218.00	0.12
196M000302	MG/KG	0.19		Mercury (Hg)	0.15	0.71	0.27
196M000302	MG/KG	8.00		Nickel (Ni)	20.90	51.60	0.16
196M000302	MG/KG	0.12	U	Silver (Ag)	1.00	3.70	0.03
196M000302	MG/KG	77.70	J	Zinc (Zn)	150.00	410.00	0.19
196M000302	UG/KG	130.00	J	4,4'-DDE	2.20	27.00	4.81
196M000302	UG/KG	64.00	J	4,4'-DDT	1.58	46.10	1.39
196M000302	UG/KG	477.00		Total PCBs	22.70	180.00	2.65
196M000302	UG/KG	810.00	U	2-Methylnaphthalene	70.00	670.00	1.21
196M000302	UG/KG	810.00	U	Acenaphthene	16.00	500.00	1.62
196M000302	UG/KG	810.00	U	Acenaphthylene	44.00	640.00	1.27
196M000302	UG/KG	810.00	U	Anthracene	85.30	1100.00	0.74
196M000302	UG/KG	100.00	J	Benzo(a)anthracene	261.00	1600.00	0.06
196M000302	UG/KG	110.00	J	Benzo(a)pyrene	430.00	1600.00	0.07
196M000302	UG/KG	78.00	J	Chrysene	384.00	2800.00	0.03
196M000302	UG/KG	810.00	U	Dibenz(a,h)anthracene	63.40	260.00	3.12
196M000302	UG/KG	360.00	J	Fluoranthene	600.00	5100.00	0.07
196M000302	UG/KG	810.00	U	Fluorene	19.00	540.00	1.50
196M000302	UG/KG	83.00	J	Naphthalene	160.00	2100.00	0.04
196M000302	UG/KG	48.00	J	Phenanthrene	240.00	1500.00	0.03
196M000302	UG/KG	370.00	J	Pyrene	665.00	2600.00	0.14
ERM Quotient Sum						19.80	
196M000302				Mean ERM Quotient		0.79	
196M000302				Mean ERM Quotient without ND		0.41	
196M000303	MG/KG	5.40		Arsenic (As)	8.20	70.00	0.08
196M000303	MG/KG	0.23	J	Cadmium (Cd)	1.20	9.60	0.02
196M000303	MG/KG	14.80	J	Chromium (Cr)	81.00	370.00	0.04
196M000303	MG/KG	6.90		Copper (Cu)	34.00	270.00	0.03
196M000303	MG/KG	7.40		Lead (Pb)	46.70	218.00	0.03
196M000303	MG/KG	0.02	J	Mercury (Hg)	0.15	0.71	0.03
196M000303	MG/KG	6.20		Nickel (Ni)	20.90	51.60	0.12
196M000303	MG/KG	0.12	U	Silver (Ag)	1.00	3.70	0.03
196M000303	MG/KG	27.80	J	Zinc (Zn)	150.00	410.00	0.07
196M000303	UG/KG	65.00	U	4,4'-DDE	2.20	27.00	2.41
196M000303	UG/KG	65.00	U	4,4'-DDT	1.58	46.10	1.41
196M000303	UG/KG	283.50	U	Total PCBs	22.70	180.00	1.58
196M000303	UG/KG	890.00	U	2-Methylnaphthalene	70.00	670.00	1.33
196M000303	UG/KG	890.00	U	Acenaphthene	16.00	500.00	1.78
196M000303	UG/KG	890.00	U	Acenaphthylene	44.00	640.00	1.39
196M000303	UG/KG	890.00	U	Anthracene	85.30	1100.00	0.81
196M000303	UG/KG	890.00	U	Benzo(a)anthracene	261.00	1600.00	0.56
196M000303	UG/KG	890.00	U	Benzo(a)pyrene	430.00	1600.00	0.56
196M000303	UG/KG	890.00	U	Chrysene	384.00	2800.00	0.32
196M000303	UG/KG	890.00	U	Dibenz(a,h)anthracene	63.40	260.00	3.42
196M000303	UG/KG	50.00	J	Fluoranthene	600.00	5100.00	0.01
196M000303	UG/KG	890.00	U	Fluorene	19.00	540.00	1.65
196M000303	UG/KG	59.00	J	Naphthalene	160.00	2100.00	0.03
196M000303	UG/KG	890.00	U	Phenanthrene	240.00	1500.00	0.59
196M000303	UG/KG	890.00	U	Pyrene	665.00	2600.00	0.34
ERM Quotient Sum						18.62	
196M000303				Mean ERM Quotient		0.74	
196M000303				Mean ERM Quotient without ND		0.02	

**Notes:**

- ERL = Effects Range-Low
- ERM = Effects Range-Median
- J = Estimated Number
- ND = Not Detected
- U = Sample Quantitation Limit
- VQUAL = Validation Qualifier

**Shipyard Creek**  
**Sediment Mean ERM Quotients**

SAMPLE ID	UNITS	RESULT	VQUAL	PARAMETER	ERL	ERM	ERM QUOTIENT
SYCM000101	MG/KG	13.10		Arsenic (As)	8.20	70.00	0.19
SYCM000101	MG/KG	1.00	J	Cadmium (Cd)	1.20	9.60	0.10
SYCM000101	MG/KG	132.00		Chromium (Cr)	81.00	370.00	0.36
SYCM000101	MG/KG	20.10		Copper (Cu)	34.00	270.00	0.07
SYCM000101	MG/KG	22.90		Lead (Pb)	46.70	218.00	0.11
SYCM000101	MG/KG	0.07	U	Mercury (Hg)	0.15	0.71	0.10
SYCM000101	MG/KG	27.80		Nickel (Ni)	20.90	51.60	0.54
SYCM000101	MG/KG	0.36	U	Silver (Ag)	1.00	3.70	0.10
SYCM000101	MG/KG	115.00		Zinc (Zn)	150.00	410.00	0.28
SYCM000101	UG/KG	7.69	U	4,4'-DDE	2.20	27.00	0.28
SYCM000101	UG/KG	7.69	U	4,4'-DDT	1.58	46.10	0.17
SYCM000101	UG/KG	308.70	U	Total PCBs	22.70	180.00	1.22
SYCM000101	UG/KG	790.00	U	2-Methylnaphthalene	70.00	670.00	1.18
SYCM000101	UG/KG	790.00	U	Acenaphthene	16.00	500.00	1.58
SYCM000101	UG/KG	790.00	U	Acenaphthylene	44.00	640.00	1.23
SYCM000101	UG/KG	790.00	U	Anthracene	85.30	1100.00	0.72
SYCM000101	UG/KG	790.00	U	Benzo(a)anthracene	261.00	1600.00	0.49
SYCM000101	UG/KG	790.00	U	Benzo(a)pyrene	430.00	1600.00	0.49
SYCM000101	UG/KG	790.00	U	Chrysene	384.00	2800.00	0.28
SYCM000101	UG/KG	790.00	U	Dibenz(a,h)anthracene	63.40	260.00	0.30
SYCM000101	UG/KG	790.00	U	Fluoranthene	600.00	5100.00	0.15
SYCM000101	UG/KG	790.00	U	Fluorene	19.00	540.00	1.46
SYCM000101	UG/KG	790.00	U	Naphthalene	160.00	2100.00	0.38
SYCM000101	UG/KG	790.00	U	Phenanthrene	240.00	1500.00	0.53
SYCM000101	UG/KG	790.00	U	Pyrene	665.00	2600.00	0.30
ERM Quotient Sum							15.85
SYCM000101				Mean ERM Quotient			0.63
SYCM000101				Mean ERM Quotient without ND			0.07
SYCM000101				Mean ERM Quotient Category			2
SYCM000201	MG/KG	12.90		Arsenic (As)	8.20	70.00	0.18
SYCM000201	MG/KG	0.77	J	Cadmium (Cd)	1.20	9.60	0.08
SYCM000201	MG/KG	97.70		Chromium (Cr)	81.00	370.00	0.26
SYCM000201	MG/KG	18.60		Copper (Cu)	34.00	270.00	0.07
SYCM000201	MG/KG	18.00		Lead (Pb)	46.70	218.00	0.08
SYCM000201	MG/KG	0.06	U	Mercury (Hg)	0.15	0.71	0.08
SYCM000201	MG/KG	25.40		Nickel (Ni)	20.90	51.60	0.49
SYCM000201	MG/KG	0.44	J	Silver (Ag)	1.00	3.70	0.12
SYCM000201	MG/KG	89.30		Zinc (Zn)	150.00	410.00	0.22
SYCM000201	UG/KG	7.38	U	4,4'-DDE	2.20	27.00	0.27
SYCM000201	UG/KG	7.38	U	4,4'-DDT	1.58	46.10	0.16
SYCM000201	UG/KG	296.40	U	Total PCBs	22.70	180.00	1.65
SYCM000201	UG/KG	730.00	U	2-Methylnaphthalene	70.00	670.00	1.09
SYCM000201	UG/KG	730.00	U	Acenaphthene	16.00	500.00	1.46
SYCM000201	UG/KG	730.00	U	Acenaphthylene	44.00	640.00	1.14
SYCM000201	UG/KG	730.00	U	Anthracene	85.30	1100.00	0.66
SYCM000201	UG/KG	730.00	U	Benzo(a)anthracene	261.00	1600.00	0.46
SYCM000201	UG/KG	730.00	U	Benzo(a)pyrene	430.00	1600.00	0.46
SYCM000201	UG/KG	730.00	U	Chrysene	384.00	2800.00	0.26
SYCM000201	UG/KG	730.00	U	Dibenz(a,h)anthracene	63.40	260.00	2.81
SYCM000201	UG/KG	730.00	U	Fluoranthene	600.00	5100.00	0.14
SYCM000201	UG/KG	730.00	U	Fluorene	19.00	540.00	1.35
SYCM000201	UG/KG	730.00	U	Naphthalene	160.00	2100.00	0.35
SYCM000201	UG/KG	730.00	U	Phenanthrene	240.00	1500.00	0.49
SYCM000201	UG/KG	730.00	U	Pyrene	665.00	2600.00	0.28
ERM Quotient Sum							14.62
SYCM000201				Mean ERM Quotient			0.58
SYCM000201				Mean ERM Quotient without ND			0.06
SYCM000201				Mean ERM Quotient Category			2

**Shipyard Creek**  
**Sediment Mean ERM Quotients**

SAMPLE ID	UNITS	RESULT	VQUAL	PARAMETER	ERL	ERM	ERM QUOTIENT
SYCM000301	MG/KG	13.20	J	Arsenic (As)	8.20	70.00	0.19
SYCM000301	MG/KG	0.97	J	Cadmium (Cd)	1.20	9.60	0.10
SYCM000301	MG/KG	53.70		Chromium (Cr)	81.00	370.00	0.15
SYCM000301	MG/KG	14.00		Copper (Cu)	34.00	270.00	0.05
SYCM000301	MG/KG	11.50		Lead (Pb)	46.70	218.00	0.05
SYCM000301	MG/KG	0.08	U	Mercury (Hg)	0.15	0.71	0.11
SYCM000301	MG/KG	21.50		Nickel (Ni)	20.90	51.60	0.42
SYCM000301	MG/KG	0.49	J	Silver (Ag)	1.00	3.70	0.13
SYCM000301	MG/KG	67.00		Zinc (Zn)	150.00	410.00	0.16
SYCM000301	UG/KG	8.03	U	4,4'-DDE	2.20	27.00	0.30
SYCM000301	UG/KG	8.03	U	4,4'-DDT	1.58	46.10	0.17
SYCM000301	UG/KG	322.40	U	Total PCBs	22.70	180.00	1.79
SYCM000301	UG/KG	800.00	U	2-Methylnaphthalene	70.00	670.00	1.19
SYCM000301	UG/KG	800.00	U	Acenaphthene	16.00	500.00	1.60
SYCM000301	UG/KG	800.00	U	Acenaphthylene	44.00	640.00	1.25
SYCM000301	UG/KG	800.00	U	Anthracene	85.30	1100.00	0.73
SYCM000301	UG/KG	800.00	U	Benzo(a)anthracene	261.00	1600.00	0.50
SYCM000301	UG/KG	800.00	U	Benzo(a)pyrene	430.00	1600.00	0.50
SYCM000301	UG/KG	800.00	U	Chrysene	384.00	2800.00	0.29
SYCM000301	UG/KG	800.00	U	Dibenz(a,h)anthracene	63.40	260.00	3.08
SYCM000301	UG/KG	800.00	U	Fluoranthene	600.00	5100.00	0.16
SYCM000301	UG/KG	800.00	U	Fluorene	19.00	540.00	1.48
SYCM000301	UG/KG	800.00	U	Naphthalene	160.00	2100.00	0.38
SYCM000301	UG/KG	800.00	U	Phenanthrene	240.00	1500.00	0.53
SYCM000301	UG/KG	800.00	U	Pyrene	665.00	2600.00	0.31
				ERM Quotient Sum			15.62
SYCM000301				Mean ERM Quotient			0.62
SYCM000301				Mean ERM Quotient without ND			0.05
SYCM000301				Mean ERM Quotient Category			2
SYCM000401	MG/KG	9.40	J	Arsenic (As)	8.20	70.00	0.13
SYCM000401	MG/KG	0.66	J	Cadmium (Cd)	1.20	9.60	0.07
SYCM000401	MG/KG	79.40		Chromium (Cr)	81.00	370.00	0.21
SYCM000401	MG/KG	10.70		Copper (Cu)	34.00	270.00	0.04
SYCM000401	MG/KG	10.90		Lead (Pb)	46.70	218.00	0.05
SYCM000401	MG/KG	0.05	U	Mercury (Hg)	0.15	0.71	0.07
SYCM000401	MG/KG	22.00		Nickel (Ni)	20.90	51.60	0.43
SYCM000401	MG/KG	0.38	J	Silver (Ag)	1.00	3.70	0.10
SYCM000401	MG/KG	67.50		Zinc (Zn)	150.00	410.00	0.16
SYCM000401	UG/KG	5.37	U	4,4'-DDE	2.20	27.00	0.20
SYCM000401	UG/KG	5.37	U	4,4'-DDT	1.58	46.10	0.12
SYCM000401	UG/KG	215.60	U	Total PCBs	22.70	180.00	1.20
SYCM000401	UG/KG	530.00	U	2-Methylnaphthalene	70.00	670.00	0.79
SYCM000401	UG/KG	530.00	U	Acenaphthene	16.00	500.00	1.06
SYCM000401	UG/KG	530.00	U	Acenaphthylene	44.00	640.00	0.83
SYCM000401	UG/KG	530.00	U	Anthracene	85.30	1100.00	0.48
SYCM000401	UG/KG	530.00	U	Benzo(a)anthracene	261.00	1600.00	0.33
SYCM000401	UG/KG	530.00	U	Benzo(a)pyrene	430.00	1600.00	0.33
SYCM000401	UG/KG	530.00	U	Chrysene	384.00	2800.00	0.19
SYCM000401	UG/KG	530.00	U	Dibenz(a,h)anthracene	63.40	260.00	2.04
SYCM000401	UG/KG	530.00	U	Fluoranthene	600.00	5100.00	0.10
SYCM000401	UG/KG	530.00	U	Fluorene	19.00	540.00	0.98
SYCM000401	UG/KG	530.00	U	Naphthalene	160.00	2100.00	0.25
SYCM000401	UG/KG	530.00	U	Phenanthrene	240.00	1500.00	0.35
SYCM000401	UG/KG	530.00	U	Pyrene	665.00	2600.00	0.20
				ERM Quotient Sum			10.73
SYCM000401				Mean ERM Quotient			0.43
SYCM000401				Mean ERM Quotient without ND			0.05
SYCM000401				Mean ERM Quotient Category			2

**Shipyard Creek**  
**Sediment Mean ERM Quotients**

SAMPLE ID	UNITS	RESULT	VQUAL	PARAMETER	ERL	ERM	ERM QUOTIENT
SYCM000501	MG/KG	12.80		Arsenic (As)	8.20	70.00	0.18
SYCM000501	MG/KG	0.80	J	Cadmium (Cd)	1.20	9.60	0.08
SYCM000501	MG/KG	63.40		Chromium (Cr)	81.00	370.00	0.17
SYCM000501	MG/KG	11.90		Copper (Cu)	34.00	270.00	0.04
SYCM000501	MG/KG	10.00		Lead (Pb)	46.70	218.00	0.05
SYCM000501	MG/KG	0.06	U	Mercury (Hg)	0.15	0.71	0.08
SYCM000501	MG/KG	22.30		Nickel (Ni)	20.90	51.60	0.43
SYCM000501	MG/KG	0.29	U	Silver (Ag)	1.00	3.70	0.08
SYCM000501	MG/KG	56.50		Zinc (Zn)	150.00	410.00	0.14
SYCM000501	UG/KG	6.33	U	4,4'-DDE	2.20	27.00	0.23
SYCM000501	UG/KG	6.33	U	4,4'-DDT	1.58	46.10	0.14
SYCM000501	UG/KG	254.40	U	Total PCBs	22.70	180.00	1.41
SYCM000501	UG/KG	630.00	U	2-Methylnaphthalene	70.00	670.00	0.94
SYCM000501	UG/KG	630.00	U	Acenaphthene	16.00	500.00	1.26
SYCM000501	UG/KG	630.00	U	Acenaphthylene	44.00	640.00	0.98
SYCM000501	UG/KG	630.00	U	Anthracene	85.30	1100.00	0.57
SYCM000501	UG/KG	630.00	U	Benzo(a)anthracene	261.00	1600.00	0.39
SYCM000501	UG/KG	630.00	U	Benzo(a)pyrene	430.00	1600.00	0.39
SYCM000501	UG/KG	630.00	U	Chrysene	384.00	2800.00	0.23
SYCM000501	UG/KG	630.00	U	Dibenz(a,h)anthracene	63.40	260.00	2.42
SYCM000501	UG/KG	630.00	U	Fluoranthene	600.00	5100.00	0.12
SYCM000501	UG/KG	630.00	U	Fluorene	19.00	540.00	1.17
SYCM000501	UG/KG	630.00	U	Naphthalene	160.00	2100.00	0.30
SYCM000501	UG/KG	630.00	U	Phenanthrene	240.00	1500.00	0.42
SYCM000501	UG/KG	630.00	U	Pyrene	665.00	2600.00	0.24
				ERM Quotient Sum			12.49
SYCM000501				Mean ERM Quotient			0.50
SYCM000501				Mean ERM Quotient without ND			0.04
SYCM000501				Mean ERM Quotient Category			2
SYCM000601	MG/KG	9.10		Arsenic (As)	8.20	70.00	0.13
SYCM000601	MG/KG	0.64	J	Cadmium (Cd)	1.20	9.60	0.07
SYCM000601	MG/KG	50.00		Chromium (Cr)	81.00	370.00	0.14
SYCM000601	MG/KG	13.50		Copper (Cu)	34.00	270.00	0.05
SYCM000601	MG/KG	3.80		Lead (Pb)	46.70	218.00	0.02
SYCM000601	MG/KG	0.05	U	Mercury (Hg)	0.15	0.71	0.07
SYCM000601	MG/KG	20.90		Nickel (Ni)	20.90	51.60	0.41
SYCM000601	MG/KG	0.22	U	Silver (Ag)	1.00	3.70	0.06
SYCM000601	MG/KG	41.40		Zinc (Zn)	150.00	410.00	0.10
SYCM000601	UG/KG	4.73	U	4,4'-DDE	2.20	27.00	0.18
SYCM000601	UG/KG	4.73	U	4,4'-DDT	1.58	46.10	0.10
SYCM000601	UG/KG	189.90	U	Total PCBs	22.70	180.00	1.06
SYCM000601	UG/KG	470.00	UJ	2-Methylnaphthalene	70.00	670.00	0.70
SYCM000601	UG/KG	470.00	UJ	Acenaphthene	16.00	500.00	0.94
SYCM000601	UG/KG	470.00	UJ	Acenaphthylene	44.00	640.00	0.73
SYCM000601	UG/KG	470.00	UJ	Anthracene	85.30	1100.00	0.43
SYCM000601	UG/KG	470.00	UJ	Benzo(a)anthracene	261.00	1600.00	0.29
SYCM000601	UG/KG	470.00	UJ	Benzo(a)pyrene	430.00	1600.00	0.29
SYCM000601	UG/KG	470.00	UJ	Chrysene	384.00	2800.00	0.17
SYCM000601	UG/KG	470.00	UJ	Dibenz(a,h)anthracene	63.40	260.00	1.81
SYCM000601	UG/KG	470.00	UJ	Fluoranthene	600.00	5100.00	0.09
SYCM000601	UG/KG	470.00	UJ	Fluorene	19.00	540.00	0.87
SYCM000601	UG/KG	470.00	UJ	Naphthalene	160.00	2100.00	0.22
SYCM000601	UG/KG	470.00	UJ	Phenanthrene	240.00	1500.00	0.31
SYCM000601	UG/KG	470.00	UJ	Pyrene	665.00	2600.00	0.18
				ERM Quotient Sum			9.41
SYCM000601				Mean ERM Quotient			0.38
SYCM000601				Mean ERM Quotient without ND			0.04
SYCM000601				Mean ERM Quotient Category			2

**Shipyard Creek**  
**Sediment Mean ERM Quotients**

SAMPLE ID	UNITS	RESULT	VQUAL	PARAMETER	ERL	ERM	ERM QUOTIENT
SYCM000701	MG/KG	12.80		Arsenic (As)	8.20	70.00	0.18
SYCM000701	MG/KG	0.68	J	Cadmium (Cd)	1.20	9.60	0.07
SYCM000701	MG/KG	76.50		Chromium (Cr)	81.00	370.00	0.21
SYCM000701	MG/KG	23.40		Copper (Cu)	34.00	270.00	0.09
SYCM000701	MG/KG	23.00		Lead (Pb)	46.70	218.00	0.11
SYCM000701	MG/KG	0.08	U	Mercury (Hg)	0.15	0.71	0.11
SYCM000701	MG/KG	24.30		Nickel (Ni)	20.90	51.60	0.47
SYCM000701	MG/KG	0.38	U	Silver (Ag)	1.00	3.70	0.10
SYCM000701	MG/KG	76.40		Zinc (Zn)	150.00	410.00	0.19
SYCM000701	UG/KG	8.63	U	4,4'-DDE	2.20	27.00	0.32
SYCM000701	UG/KG	8.63	U	4,4'-DDT	1.58	46.10	0.19
SYCM000701	UG/KG	346.40	U	Total PCBs	22.70	180.00	1.92
SYCM000701	UG/KG	870.00	U	2-Methylnaphthalene	70.00	670.00	1.30
SYCM000701	UG/KG	870.00	U	Acenaphthene	16.00	500.00	1.74
SYCM000701	UG/KG	870.00	U	Acenaphthylene	44.00	640.00	1.36
SYCM000701	UG/KG	870.00	U	Anthracene	85.30	1100.00	0.79
SYCM000701	UG/KG	110.00	J	Benzo(a)anthracene	261.00	1600.00	0.07
SYCM000701	UG/KG	870.00	U	Benzo(a)pyrene	430.00	1600.00	0.54
SYCM000701	UG/KG	170.00	J	Chrysene	384.00	2800.00	0.06
SYCM000701	UG/KG	870.00	U	Dibenz(a,h)anthracene	63.40	260.00	3.35
SYCM000701	UG/KG	99.00	J	Fluoranthene	600.00	5100.00	0.02
SYCM000701	UG/KG	870.00	U	Fluorene	19.00	540.00	1.61
SYCM000701	UG/KG	870.00	U	Naphthalene	160.00	2100.00	0.41
SYCM000701	UG/KG	870.00	U	Phenanthrene	240.00	1500.00	0.58
SYCM000701	UG/KG	100.00	J	Pyrene	665.00	2600.00	0.04
ERM Quotient Sum							15.83
Mean ERM Quotient							0.63
Mean ERM Quotient without ND							0.06
Mean ERM Quotient Category							2
SYCM000801	MG/KG	21.60		Arsenic (As)	8.20	70.00	0.31
SYCM000801	MG/KG	0.84	J	Cadmium (Cd)	1.20	9.60	0.09
SYCM000801	MG/KG	63.20	J	Chromium (Cr)	81.00	370.00	0.17
SYCM000801	MG/KG	20.80	J	Copper (Cu)	34.00	270.00	0.08
SYCM000801	MG/KG	27.70	J	Lead (Pb)	46.70	218.00	0.13
SYCM000801	MG/KG	0.17	U	Mercury (Hg)	0.15	0.71	0.24
SYCM000801	MG/KG	13.70	J	Nickel (Ni)	20.90	51.60	0.27
SYCM000801	MG/KG	2.50	U	Silver (Ag)	1.00	3.70	0.68
SYCM000801	MG/KG	99.30	J	Zinc (Zn)	150.00	410.00	0.24
SYCM000801	UG/KG	16.00	U	4,4'-DDE	2.20	27.00	0.59
SYCM000801	UG/KG	16.00	U	4,4'-DDT	1.58	46.10	0.35
SYCM000801	UG/KG	642.50	U	Total PCBs	22.70	180.00	3.57
SYCM000801	UG/KG	1600.00	U	2-Methylnaphthalene	70.00	670.00	2.39
SYCM000801	UG/KG	1600.00	U	Acenaphthene	16.00	500.00	3.20
SYCM000801	UG/KG	1600.00	U	Acenaphthylene	44.00	640.00	2.50
SYCM000801	UG/KG	1600.00	U	Anthracene	85.30	1100.00	1.45
SYCM000801	UG/KG	1600.00	U	Benzo(a)anthracene	261.00	1600.00	1.00
SYCM000801	UG/KG	1600.00	U	Benzo(a)pyrene	430.00	1600.00	1.00
SYCM000801	UG/KG	1600.00	U	Chrysene	384.00	2800.00	0.57
SYCM000801	UG/KG	1600.00	U	Dibenz(a,h)anthracene	63.40	260.00	6.15
SYCM000801	UG/KG	210.00	J	Fluoranthene	600.00	5100.00	0.04
SYCM000801	UG/KG	1600.00	U	Fluorene	19.00	540.00	2.96
SYCM000801	UG/KG	1600.00	U	Naphthalene	160.00	2100.00	0.76
SYCM000801	UG/KG	1600.00	U	Phenanthrene	240.00	1500.00	1.07
SYCM000801	UG/KG	1600.00	U	Pyrene	665.00	2600.00	0.62
ERM Quotient Sum							30.42
Mean ERM Quotient							1.22
Mean ERM Quotient without ND							0.05
Mean ERM Quotient Category							2

**Shipyard Creek**  
**Sediment Mean ERM Quotients**

SAMPLE ID	UNITS	RESULT	VQUAL	PARAMETER	ERL	ERM	ERM QUOTIENT
SYCM000901	MG/KG	13.90		Arsenic (As)	8.20	70.00	0.20
SYCM000901	MG/KG	0.76	J	Cadmium (Cd)	1.20	9.60	0.08
SYCM000901	MG/KG	60.50	J	Chromium (Cr)	81.00	370.00	0.16
SYCM000901	MG/KG	41.90	J	Copper (Cu)	34.00	270.00	0.16
SYCM000901	MG/KG	28.10	J	Lead (Pb)	46.70	218.00	0.13
SYCM000901	MG/KG	0.07	U	Mercury (Hg)	0.15	0.71	0.10
SYCM000901	MG/KG	10.20	J	Nickel (Ni)	20.90	51.60	0.20
SYCM000901	MG/KG	0.91	U	Silver (Ag)	1.00	3.70	0.25
SYCM000901	MG/KG	94.90	J	Zinc (Zn)	150.00	410.00	0.23
SYCM000901	UG/KG	6.56	U	4,4'-DDE	2.20	27.00	0.24
SYCM000901	UG/KG	6.56	U	4,4'-DDT	1.58	46.10	0.14
SYCM000901	UG/KG	263.30	U	Total PCBs	22.70	180.00	1.46
SYCM000901	UG/KG	660.00	U	2-Methylnaphthalene	70.00	670.00	0.99
SYCM000901	UG/KG	660.00	U	Acenaphthene	16.00	500.00	1.32
SYCM000901	UG/KG	660.00	U	Acenaphthylene	44.00	640.00	1.03
SYCM000901	UG/KG	660.00	U	Anthracene	85.30	1100.00	0.60
SYCM000901	UG/KG	100.00	J	Benzo(a)anthracene	261.00	1600.00	0.06
SYCM000901	UG/KG	110.00	J	Benzo(a)pyrene	430.00	1600.00	0.07
SYCM000901	UG/KG	120.00	J	Chrysene	384.00	2800.00	0.04
SYCM000901	UG/KG	660.00	U	Dibenz(a,h)anthracene	63.40	260.00	2.54
SYCM000901	UG/KG	190.00	J	Fluoranthene	600.00	5100.00	0.04
SYCM000901	UG/KG	660.00	U	Fluorene	19.00	540.00	1.22
SYCM000901	UG/KG	660.00	U	Naphthalene	160.00	2100.00	0.31
SYCM000901	UG/KG	74.00	J	Phenanthrene	240.00	1500.00	0.05
SYCM000901	UG/KG	180.00	J	Pyrene	665.00	2600.00	0.07
ERM Quotient Sum							11.69
Mean ERM Quotient							0.47
Mean ERM Quotient without ND							0.06
Mean ERM Quotient Category							2
SYCM001001	MG/KG	13.40		Arsenic (As)	8.20	70.00	0.19
SYCM001001	MG/KG	0.73	J	Cadmium (Cd)	1.20	9.60	0.08
SYCM001001	MG/KG	73.10		Chromium (Cr)	81.00	370.00	0.20
SYCM001001	MG/KG	21.00		Copper (Cu)	34.00	270.00	0.08
SYCM001001	MG/KG	21.50		Lead (Pb)	46.70	218.00	0.10
SYCM001001	MG/KG	0.07	U	Mercury (Hg)	0.15	0.71	0.10
SYCM001001	MG/KG	20.00		Nickel (Ni)	20.90	51.60	0.39
SYCM001001	MG/KG	1.10	J	Silver (Ag)	1.00	3.70	0.30
SYCM001001	MG/KG	87.40		Zinc (Zn)	150.00	410.00	0.21
SYCM001001	UG/KG	7.71	U	4,4'-DDE	2.20	27.00	0.29
SYCM001001	UG/KG	7.71	U	4,4'-DDT	1.58	46.10	0.17
SYCM001001	UG/KG	309.30	U	Total PCBs	22.70	180.00	1.72
SYCM001001	UG/KG	770.00	U	2-Methylnaphthalene	70.00	670.00	1.15
SYCM001001	UG/KG	770.00	U	Acenaphthene	16.00	500.00	1.54
SYCM001001	UG/KG	770.00	U	Acenaphthylene	44.00	640.00	1.20
SYCM001001	UG/KG	770.00	U	Anthracene	85.30	1100.00	0.70
SYCM001001	UG/KG	770.00	U	Benzo(a)anthracene	261.00	1600.00	0.48
SYCM001001	UG/KG	770.00	U	Benzo(a)pyrene	430.00	1600.00	0.48
SYCM001001	UG/KG	770.00	U	Chrysene	384.00	2800.00	0.28
SYCM001001	UG/KG	770.00	U	Dibenz(a,h)anthracene	63.40	260.00	2.96
SYCM001001	UG/KG	770.00	U	Fluoranthene	600.00	5100.00	0.15
SYCM001001	UG/KG	770.00	U	Fluorene	19.00	540.00	1.43
SYCM001001	UG/KG	770.00	U	Naphthalene	160.00	2100.00	0.37
SYCM001001	UG/KG	770.00	U	Phenanthrene	240.00	1500.00	0.51
SYCM001001	UG/KG	770.00	U	Pyrene	665.00	2600.00	0.30
ERM Quotient Sum							15.35
Mean ERM Quotient							0.61
Mean ERM Quotient without ND							0.06
Mean ERM Quotient Category							2

**Shipyard Creek**  
**Sediment Mean ERM Quotients**

SAMPLE ID	UNITS	RESULT	VQUAL	PARAMETER	ERL	ERM	ERM QUOTIENT
SYCM001101	MG/KG	6.90		Arsenic (As)	8.20	70.00	0.10
SYCM001101	MG/KG	0.15	J	Cadmium (Cd)	1.20	9.60	0.02
SYCM001101	MG/KG	26.00		Chromium (Cr)	81.00	370.00	0.07
SYCM001101	MG/KG	11.40		Copper (Cu)	34.00	270.00	0.04
SYCM001101	MG/KG	10.60		Lead (Pb)	46.70	218.00	0.05
SYCM001101	MG/KG	0.05	U	Mercury (Hg)	0.15	0.71	0.07
SYCM001101	MG/KG	6.50	J	Nickel (Ni)	20.90	51.60	0.13
SYCM001101	MG/KG	0.70	J	Silver (Ag)	1.00	3.70	0.19
SYCM001101	MG/KG	39.20		Zinc (Zn)	150.00	410.00	0.10
SYCM001101	UG/KG	5.46	U	4,4'-DDE	2.20	27.00	0.20
SYCM001101	UG/KG	5.46	U	4,4'-DDT	1.58	46.10	0.12
SYCM001101	UG/KG	219.30	U	Total PCBs	22.70	180.00	1.22
SYCM001101	UG/KG	550.00	U	2-Methylnaphthalene	70.00	670.00	0.82
SYCM001101	UG/KG	550.00	U	Acenaphthene	16.00	500.00	1.10
SYCM001101	UG/KG	550.00	U	Acenaphthylene	44.00	640.00	0.86
SYCM001101	UG/KG	550.00	U	Anthracene	85.30	1100.00	0.50
SYCM001101	UG/KG	550.00	U	Benzo(a)anthracene	261.00	1600.00	0.34
SYCM001101	UG/KG	550.00	U	Benzo(a)pyrene	430.00	1600.00	0.34
SYCM001101	UG/KG	550.00	U	Chrysene	384.00	2800.00	0.20
SYCM001101	UG/KG	550.00	U	Dibenz(a,h)anthracene	63.40	260.00	2.12
SYCM001101	UG/KG	550.00	U	Fluoranthene	600.00	5100.00	0.11
SYCM001101	UG/KG	550.00	U	Fluorene	19.00	540.00	1.02
SYCM001101	UG/KG	550.00	U	Naphthalene	160.00	2100.00	0.26
SYCM001101	UG/KG	550.00	U	Phenanthrene	240.00	1500.00	0.37
SYCM001101	UG/KG	550.00	U	Pyrene	665.00	2600.00	0.21
				ERM Quotient Sum			10.54
SYCM001101				Mean ERM Quotient			0.42
SYCM001101				Mean ERM Quotient without ND			0.03
SYCM001101				Mean ERM Quotient Category			1
SYCM001201	MG/KG	8.10		Arsenic (As)	8.20	70.00	0.12
SYCM001201	MG/KG	0.56	J	Cadmium (Cd)	1.20	9.60	0.06
SYCM001201	MG/KG	59.20		Chromium (Cr)	81.00	370.00	0.16
SYCM001201	MG/KG	24.10		Copper (Cu)	34.00	270.00	0.09
SYCM001201	MG/KG	17.30		Lead (Pb)	46.70	218.00	0.08
SYCM001201	MG/KG	0.06	U	Mercury (Hg)	0.15	0.71	0.08
SYCM001201	MG/KG	16.50		Nickel (Ni)	20.90	51.60	0.32
SYCM001201	MG/KG	0.31	U	Silver (Ag)	1.00	3.70	0.08
SYCM001201	MG/KG	74.80		Zinc (Zn)	150.00	410.00	0.18
SYCM001201	UG/KG	6.49	U	4,4'-DDE	2.20	27.00	0.24
SYCM001201	UG/KG	6.49	U	4,4'-DDT	1.58	46.10	0.14
SYCM001201	UG/KG	260.70	U	Total PCBs	22.70	180.00	1.45
SYCM001201	UG/KG	650.00	U	2-Methylnaphthalene	70.00	670.00	0.97
SYCM001201	UG/KG	650.00	U	Acenaphthene	16.00	500.00	1.30
SYCM001201	UG/KG	650.00	U	Acenaphthylene	44.00	640.00	1.02
SYCM001201	UG/KG	650.00	U	Anthracene	85.30	1100.00	0.59
SYCM001201	UG/KG	650.00	U	Benzo(a)anthracene	261.00	1600.00	0.41
SYCM001201	UG/KG	650.00	U	Benzo(a)pyrene	430.00	1600.00	0.41
SYCM001201	UG/KG	650.00	U	Chrysene	384.00	2800.00	0.23
SYCM001201	UG/KG	650.00	U	Dibenz(a,h)anthracene	63.40	260.00	2.50
SYCM001201	UG/KG	650.00	U	Fluoranthene	600.00	5100.00	0.13
SYCM001201	UG/KG	650.00	U	Fluorene	19.00	540.00	1.20
SYCM001201	UG/KG	650.00	U	Naphthalene	160.00	2100.00	0.31
SYCM001201	UG/KG	650.00	U	Phenanthrene	240.00	1500.00	0.43
SYCM001201	UG/KG	650.00	U	Pyrene	665.00	2600.00	0.25
				ERM Quotient Sum			12.75
SYCM001201				Mean ERM Quotient			0.51
SYCM001201				Mean ERM Quotient without ND			0.04
SYCM001201				Mean ERM Quotient Category			1

**Shipyard Creek**  
**Sediment Mean ERM Quotients**

SAMPLE ID	UNITS	RESULT	VQUAL	PARAMETER	ERL	ERM	ERM QUOTIENT
SYCM001301	MG/KG	7.30		Arsenic (As)	8.20	70.00	0.10
SYCM001301	MG/KG	0.28	J	Cadmium (Cd)	1.20	9.60	0.03
SYCM001301	MG/KG	104.00		Chromium (Cr)	81.00	370.00	0.28
SYCM001301	MG/KG	36.50		Copper (Cu)	34.00	270.00	0.14
SYCM001301	MG/KG	36.90		Lead (Pb)	46.70	218.00	0.17
SYCM001301	MG/KG	0.09		Mercury (Hg)	0.15	0.71	0.13
SYCM001301	MG/KG	19.90	J	Nickel (Ni)	20.90	51.60	0.39
SYCM001301	MG/KG	1.40	J	Silver (Ag)	1.00	3.70	0.38
SYCM001301	MG/KG	87.50		Zinc (Zn)	150.00	410.00	0.21
SYCM001301	UG/KG	9.02	U	4,4'-DDE	2.20	27.00	0.33
SYCM001301	UG/KG	9.02	U	4,4'-DDT	1.58	46.10	0.20
SYCM001301	UG/KG	362.10	U	Total PCBs	22.70	180.00	2.01
SYCM001301	UG/KG	890.00	U	2-Methylnaphthalene	70.00	670.00	1.33
SYCM001301	UG/KG	890.00	U	Acenaphthene	16.00	500.00	1.78
SYCM001301	UG/KG	890.00	U	Acenaphthylene	44.00	640.00	1.39
SYCM001301	UG/KG	890.00	U	Anthracene	85.30	1100.00	0.81
SYCM001301	UG/KG	890.00	U	Benzo(a)anthracene	261.00	1600.00	0.56
SYCM001301	UG/KG	890.00	U	Benzo(a)pyrene	430.00	1600.00	0.56
SYCM001301	UG/KG	890.00	U	Chrysene	384.00	2800.00	0.32
SYCM001301	UG/KG	890.00	U	Dibenz(a,h)anthracene	63.40	260.00	3.42
SYCM001301	UG/KG	890.00	U	Fluoranthene	600.00	5100.00	0.17
SYCM001301	UG/KG	890.00	U	Fluorene	19.00	540.00	1.65
SYCM001301	UG/KG	890.00	U	Naphthalene	160.00	2100.00	0.42
SYCM001301	UG/KG	890.00	U	Phenanthrene	240.00	1500.00	0.59
SYCM001301	UG/KG	890.00	U	Pyrene	665.00	2600.00	0.34
				ERM Quotient Sum			17.71
SYCM001301				Mean ERM Quotient			0.71
SYCM001301				Mean ERM Quotient without ND			0.07
SYCM001301				Mean ERM Quotient Category			2

SYCM001401	MG/KG	18.80		Arsenic (As)	8.20	70.00	0.27
SYCM001401	MG/KG	0.87	J	Cadmium (Cd)	1.20	9.60	0.09
SYCM001401	MG/KG	57.70	J	Chromium (Cr)	81.00	370.00	0.16
SYCM001401	MG/KG	24.40	J	Copper (Cu)	34.00	270.00	0.09
SYCM001401	MG/KG	27.00	J	Lead (Pb)	46.70	218.00	0.12
SYCM001401	MG/KG	0.14	U	Mercury (Hg)	0.15	0.71	0.20
SYCM001401	MG/KG	17.00	J	Nickel (Ni)	20.90	51.60	0.33
SYCM001401	MG/KG	2.30	U	Silver (Ag)	1.00	3.70	0.62
SYCM001401	MG/KG	102.00	J	Zinc (Zn)	150.00	410.00	0.25
SYCM001401	UG/KG	14.60	U	4,4'-DDE	2.20	27.00	0.54
SYCM001401	UG/KG	14.60	U	4,4'-DDT	1.58	46.10	0.32
SYCM001401	UG/KG	586.00	U	Total PCBs	22.70	180.00	3.26
SYCM001401	UG/KG	1400.00	U	2-Methylnaphthalene	70.00	670.00	2.09
SYCM001401	UG/KG	1400.00	U	Acenaphthene	16.00	500.00	2.80
SYCM001401	UG/KG	1400.00	U	Acenaphthylene	44.00	640.00	2.19
SYCM001401	UG/KG	1400.00	U	Anthracene	85.30	1100.00	1.27
SYCM001401	UG/KG	1400.00	U	Benzo(a)anthracene	261.00	1600.00	0.88
SYCM001401	UG/KG	1400.00	U	Benzo(a)pyrene	430.00	1600.00	0.88
SYCM001401	UG/KG	1400.00	U	Chrysene	384.00	2800.00	0.50
SYCM001401	UG/KG	1400.00	U	Dibenz(a,h)anthracene	63.40	260.00	5.38
SYCM001401	UG/KG	1400.00	U	Fluoranthene	600.00	5100.00	0.27
SYCM001401	UG/KG	1400.00	U	Fluorene	19.00	540.00	2.59
SYCM001401	UG/KG	1400.00	U	Naphthalene	160.00	2100.00	0.67
SYCM001401	UG/KG	1400.00	U	Phenanthrene	240.00	1500.00	0.93
SYCM001401	UG/KG	1400.00	U	Pyrene	665.00	2600.00	0.54
				ERM Quotient Sum			27.23
SYCM001401				Mean ERM Quotient			1.09
SYCM001401				Mean ERM Quotient without ND			0.05
SYCM001401				Mean ERM Quotient Category			2

**Shipyard Creek**  
**Sediment Mean ERM Quotients**

SAMPLE ID	UNITS	RESULT	VQUAL	PARAMETER	ERL	ERM	ERM QUOTIENT
SYCM001501	MG/KG	21.70		Arsenic (As)	8.20	70.00	0.31
SYCM001501	MG/KG	0.35	J	Cadmium (Cd)	1.20	9.60	0.04
SYCM001501	MG/KG	58.20		Chromium (Cr)	81.00	370.00	0.16
SYCM001501	MG/KG	17.30		Copper (Cu)	34.00	270.00	0.06
SYCM001501	MG/KG	20.90		Lead (Pb)	46.70	218.00	0.10
SYCM001501	MG/KG	0.08	U	Mercury (Hg)	0.15	0.71	0.11
SYCM001501	MG/KG	17.70	J	Nickel (Ni)	20.90	51.60	0.34
SYCM001501	MG/KG	0.78	J	Silver (Ag)	1.00	3.70	0.21
SYCM001501	MG/KG	60.50		Zinc (Zn)	150.00	410.00	0.15
SYCM001501	UG/KG	8.21	U	4,4'-DDE	2.20	27.00	0.30
SYCM001501	UG/KG	8.21	U	4,4'-DDT	1.58	46.10	0.18
SYCM001501	UG/KG	329.80	U	Total PCBs	22.70	180.00	1.83
SYCM001501	UG/KG	820.00	U	2-Methylnaphthalene	70.00	670.00	1.22
SYCM001501	UG/KG	820.00	U	Acenaphthene	16.00	500.00	1.64
SYCM001501	UG/KG	820.00	U	Acenaphthylene	44.00	640.00	1.28
SYCM001501	UG/KG	820.00	U	Anthracene	85.30	1100.00	0.75
SYCM001501	UG/KG	820.00	U	Benzo(a)anthracene	261.00	1600.00	0.51
SYCM001501	UG/KG	820.00	U	Benzo(a)pyrene	430.00	1600.00	0.51
SYCM001501	UG/KG	820.00	U	Chrysene	384.00	2800.00	0.29
SYCM001501	UG/KG	820.00	U	Dibenz(a,h)anthracene	63.40	260.00	3.15
SYCM001501	UG/KG	820.00	U	Fluoranthene	600.00	5100.00	0.16
SYCM001501	UG/KG	820.00	U	Fluorene	19.00	540.00	1.52
SYCM001501	UG/KG	820.00	U	Naphthalene	160.00	2100.00	0.39
SYCM001501	UG/KG	820.00	U	Phenanthrene	240.00	1500.00	0.55
SYCM001501	UG/KG	820.00	U	Pyrene	665.00	2600.00	0.32
				ERM Quotient Sum			16.09
SYCM001501				Mean ERM Quotient			0.64
SYCM001501				Mean ERM Quotient without ND			0.05
SYCM001501				Mean ERM Quotient Category			2
SYCM001601	MG/KG	21.00		Arsenic (As)	8.20	70.00	0.30
SYCM001601	MG/KG	0.94	J	Cadmium (Cd)	1.20	9.60	0.10
SYCM001601	MG/KG	48.20	J	Chromium (Cr)	81.00	370.00	0.13
SYCM001601	MG/KG	21.70	J	Copper (Cu)	34.00	270.00	0.08
SYCM001601	MG/KG	27.40	J	Lead (Pb)	46.70	218.00	0.13
SYCM001601	MG/KG	0.13	U	Mercury (Hg)	0.15	0.71	0.18
SYCM001601	MG/KG	13.20	J	Nickel (Ni)	20.90	51.60	0.26
SYCM001601	MG/KG	2.50	U	Silver (Ag)	1.00	3.70	0.68
SYCM001601	MG/KG	91.90	J	Zinc (Zn)	150.00	410.00	0.22
SYCM001601	UG/KG	14.80	U	4,4'-DDE	2.20	27.00	0.55
SYCM001601	UG/KG	14.80	U	4,4'-DDT	1.58	46.10	0.32
SYCM001601	UG/KG	594.00	U	Total PCBs	22.70	180.00	3.30
SYCM001601	UG/KG	1500.00	UJ	2-Methylnaphthalene	70.00	670.00	2.24
SYCM001601	UG/KG	1500.00	UJ	Acenaphthene	16.00	500.00	3.00
SYCM001601	UG/KG	1500.00	UJ	Acenaphthylene	44.00	640.00	2.34
SYCM001601	UG/KG	1500.00	UJ	Anthracene	85.30	1100.00	1.36
SYCM001601	UG/KG	1500.00	UJ	Benzo(a)anthracene	261.00	1600.00	0.94
SYCM001601	UG/KG	1500.00	UJ	Benzo(a)pyrene	430.00	1600.00	0.94
SYCM001601	UG/KG	1500.00	UJ	Chrysene	384.00	2800.00	0.54
SYCM001601	UG/KG	1500.00	UJ	Dibenz(a,h)anthracene	63.40	260.00	5.77
SYCM001601	UG/KG	1500.00	UJ	Fluoranthene	600.00	5100.00	0.29
SYCM001601	UG/KG	1500.00	UJ	Fluorene	19.00	540.00	2.78
SYCM001601	UG/KG	1500.00	UJ	Naphthalene	160.00	2100.00	0.71
SYCM001601	UG/KG	1500.00	UJ	Phenanthrene	240.00	1500.00	1.00
SYCM001601	UG/KG	1500.00	UJ	Pyrene	665.00	2600.00	0.58
				ERM Quotient Sum			28.73
SYCM001601				Mean ERM Quotient			1.15
SYCM001601				Mean ERM Quotient without ND			0.05
SYCM001601				Mean ERM Quotient Category			2

**Shipyard Creek**  
**Sediment Mean ERM Quotients**

SAMPLE ID	UNITS	RESULT	VQUAL	PARAMETER	ERL	ERM	ERM QUOTIENT
SYCM001701	MG/KG	22.70		Arsenic (As)	8.20	70.00	0.32
SYCM001701	MG/KG	0.19	J	Cadmium (Cd)	1.20	9.60	0.02
SYCM001701	MG/KG	45.20		Chromium (Cr)	81.00	370.00	0.12
SYCM001701	MG/KG	12.90		Copper (Cu)	34.00	270.00	0.05
SYCM001701	MG/KG	22.20		Lead (Pb)	46.70	218.00	0.10
SYCM001701	MG/KG	0.06	U	Mercury (Hg)	0.15	0.71	0.08
SYCM001701	MG/KG	13.90	J	Nickel (Ni)	20.90	51.60	0.27
SYCM001701	MG/KG	0.39	U	Silver (Ag)	1.00	3.70	0.11
SYCM001701	MG/KG	47.60		Zinc (Zn)	150.00	410.00	0.12
SYCM001701	UG/KG	8.29	U	4,4'-DDE	2.20	27.00	0.31
SYCM001701	UG/KG	8.29	U	4,4'-DDT	1.58	46.10	0.18
SYCM001701	UG/KG	332.70	U	Total PCBs	22.70	180.00	1.85
SYCM001701	UG/KG	820.00	U	2-Methylnaphthalene	70.00	670.00	1.22
SYCM001701	UG/KG	820.00	U	Acenaphthene	16.00	500.00	1.64
SYCM001701	UG/KG	820.00	U	Acenaphthylene	44.00	640.00	1.28
SYCM001701	UG/KG	820.00	U	Anthracene	85.30	1100.00	0.75
SYCM001701	UG/KG	820.00	U	Benzo(a)anthracene	261.00	1600.00	0.51
SYCM001701	UG/KG	820.00	U	Benzo(a)pyrene	430.00	1600.00	0.51
SYCM001701	UG/KG	820.00	U	Chrysene	384.00	2800.00	0.29
SYCM001701	UG/KG	820.00	U	Dibenz(a,h)anthracene	63.40	260.00	3.15
SYCM001701	UG/KG	820.00	U	Fluoranthene	600.00	5100.00	0.16
SYCM001701	UG/KG	820.00	U	Fluorene	19.00	540.00	1.52
SYCM001701	UG/KG	820.00	U	Naphthalene	160.00	2100.00	0.39
SYCM001701	UG/KG	820.00	U	Phenanthrene	240.00	1500.00	0.55
SYCM001701	UG/KG	820.00	U	Pyrene	665.00	2600.00	0.32
				ERM Quotient Sum			15.82
SYCM001701				Mean ERM Quotient			0.63
SYCM001701				Mean ERM Quotient without ND			0.04
SYCM001701				Mean ERM Quotient Category			2
SYCM001801	MG/KG	11.50		Arsenic (As)	8.20	70.00	0.16
SYCM001801	MG/KG	0.59	J	Cadmium (Cd)	1.20	9.60	0.06
SYCM001801	MG/KG	37.10		Chromium (Cr)	81.00	370.00	0.10
SYCM001801	MG/KG	61.80		Copper (Cu)	34.00	270.00	0.23
SYCM001801	MG/KG	10.50		Lead (Pb)	46.70	218.00	0.05
SYCM001801	MG/KG	0.04	U	Mercury (Hg)	0.15	0.71	0.06
SYCM001801	MG/KG	8.30	J	Nickel (Ni)	20.90	51.60	0.16
SYCM001801	MG/KG	0.18	U	Silver (Ag)	1.00	3.70	0.05
SYCM001801	MG/KG	30.90		Zinc (Zn)	150.00	410.00	0.08
SYCM001801	UG/KG	4.01	U	4,4'-DDE	2.20	27.00	0.15
SYCM001801	UG/KG	4.01	U	4,4'-DDT	1.58	46.10	0.09
SYCM001801	UG/KG	161.00	U	Total PCBs	22.70	180.00	0.89
SYCM001801	UG/KG	400.00	U	2-Methylnaphthalene	70.00	670.00	0.60
SYCM001801	UG/KG	400.00	U	Acenaphthene	16.00	500.00	0.80
SYCM001801	UG/KG	400.00	U	Acenaphthylene	44.00	640.00	0.63
SYCM001801	UG/KG	400.00	U	Anthracene	85.30	1100.00	0.36
SYCM001801	UG/KG	92.00	J	Benzo(a)anthracene	261.00	1600.00	0.06
SYCM001801	UG/KG	75.00	J	Benzo(a)pyrene	430.00	1600.00	0.05
SYCM001801	UG/KG	110.00	J	Chrysene	384.00	2800.00	0.04
SYCM001801	UG/KG	400.00	U	Dibenz(a,h)anthracene	63.40	260.00	1.54
SYCM001801	UG/KG	160.00	J	Fluoranthene	600.00	5100.00	0.03
SYCM001801	UG/KG	400.00	U	Fluorene	19.00	540.00	0.74
SYCM001801	UG/KG	400.00	U	Naphthalene	160.00	2100.00	0.19
SYCM001801	UG/KG	83.00	J	Phenanthrene	240.00	1500.00	0.06
SYCM001801	UG/KG	160.00	J	Pyrene	665.00	2600.00	0.06
				ERM Quotient Sum			7.22
SYCM001801				Mean ERM Quotient			0.29
SYCM001801				Mean ERM Quotient without ND			0.05
SYCM001801				Mean ERM Quotient Category			2

**Shipyard Creek**  
**Sediment Mean ERM Quotients**

SAMPLE ID	UNITS	RESULT	VQUAL	PARAMETER	ERL	ERM	ERM QUOTIENT
SYCM001901	MG/KG	21.70		Arsenic (As)	8.20	70.00	0.31
SYCM001901	MG/KG	0.84	J	Cadmium (Cd)	1.20	9.60	0.09
SYCM001901	MG/KG	52.40	J	Chromium (Cr)	81.00	370.00	0.14
SYCM001901	MG/KG	21.30	J	Copper (Cu)	34.00	270.00	0.08
SYCM001901	MG/KG	28.60	J	Lead (Pb)	46.70	218.00	0.13
SYCM001901	MG/KG	0.16	U	Mercury (Hg)	0.15	0.71	0.23
SYCM001901	MG/KG	14.40	J	Nickel (Ni)	20.90	51.60	0.28
SYCM001901	MG/KG	2.50	U	Silver (Ag)	1.00	3.70	0.68
SYCM001901	MG/KG	103.00	J	Zinc (Zn)	150.00	410.00	0.25
SYCM001901	UG/KG	15.30	U	4,4'-DDE	2.20	27.00	0.57
SYCM001901	UG/KG	15.30	U	4,4'-DDT	1.58	46.10	0.33
SYCM001901	UG/KG	614.50	U	Total PCBs	22.70	180.00	3.41
SYCM001901	UG/KG	1500.00	U	2-Methylnaphthalene	70.00	670.00	2.24
SYCM001901	UG/KG	1500.00	U	Acenaphthene	16.00	500.00	3.00
SYCM001901	UG/KG	1500.00	U	Acenaphthylene	44.00	640.00	2.34
SYCM001901	UG/KG	1500.00	U	Anthracene	85.30	1100.00	1.36
SYCM001901	UG/KG	1500.00	U	Benzo(a)anthracene	261.00	1600.00	0.94
SYCM001901	UG/KG	1500.00	U	Benzo(a)pyrene	430.00	1600.00	0.94
SYCM001901	UG/KG	1500.00	U	Chrysene	384.00	2800.00	0.54
SYCM001901	UG/KG	1500.00	U	Dibenz(a,h)anthracene	63.40	260.00	5.77
SYCM001901	UG/KG	1500.00	U	Fluoranthene	600.00	5100.00	0.29
SYCM001901	UG/KG	1500.00	U	Fluorene	19.00	540.00	2.78
SYCM001901	UG/KG	1500.00	U	Naphthalene	160.00	2100.00	0.71
SYCM001901	UG/KG	1500.00	U	Phenanthrene	240.00	1500.00	1.00
SYCM001901	UG/KG	1500.00	U	Pyrene	665.00	2600.00	0.58
				ERM Quotient Sum			28.98
SYCM001901				Mean ERM Quotient			1.16
SYCM001901				Mean ERM Quotient without ND			0.05
SYCM001901				Mean ERM Quotient Category			2
SYCM002001	MG/KG	20.60		Arsenic (As)	8.20	70.00	0.29
SYCM002001	MG/KG	0.17	U	Cadmium (Cd)	1.20	9.60	0.02
SYCM002001	MG/KG	53.40	J	Chromium (Cr)	81.00	370.00	0.14
SYCM002001	MG/KG	18.30	J	Copper (Cu)	34.00	270.00	0.07
SYCM002001	MG/KG	22.50		Lead (Pb)	46.70	218.00	0.10
SYCM002001	MG/KG	0.17	U	Mercury (Hg)	0.15	0.71	0.24
SYCM002001	MG/KG	14.40	J	Nickel (Ni)	20.90	51.60	0.28
SYCM002001	MG/KG	1.40	UJ	Silver (Ag)	1.00	3.70	0.38
SYCM002001	MG/KG	76.50		Zinc (Zn)	150.00	410.00	0.19
SYCM002001	UG/KG	15.60	UJ	4,4'-DDE	2.20	27.00	0.58
SYCM002001	UG/KG	15.60	UJ	4,4'-DDT	1.58	46.10	0.34
SYCM002001	UG/KG	624.00	U	Total PCBs	22.70	180.00	3.47
SYCM002001	UG/KG	1600.00	U	2-Methylnaphthalene	70.00	670.00	2.39
SYCM002001	UG/KG	1600.00	U	Acenaphthene	16.00	500.00	3.20
SYCM002001	UG/KG	1600.00	U	Acenaphthylene	44.00	640.00	2.50
SYCM002001	UG/KG	1600.00	U	Anthracene	85.30	1100.00	1.45
SYCM002001	UG/KG	1600.00	U	Benzo(a)anthracene	261.00	1600.00	1.00
SYCM002001	UG/KG	1600.00	U	Benzo(a)pyrene	430.00	1600.00	1.00
SYCM002001	UG/KG	180.00	J	Chrysene	384.00	2800.00	0.06
SYCM002001	UG/KG	1600.00	U	Dibenz(a,h)anthracene	63.40	260.00	6.15
SYCM002001	UG/KG	350.00	J	Fluoranthene	600.00	5100.00	0.07
SYCM002001	UG/KG	1600.00	U	Fluorene	19.00	540.00	2.96
SYCM002001	UG/KG	1600.00	U	Naphthalene	160.00	2100.00	0.76
SYCM002001	UG/KG	170.00	J	Phenanthrene	240.00	1500.00	0.11
SYCM002001	UG/KG	250.00	J	Pyrene	665.00	2600.00	0.10
				ERM Quotient Sum			27.86
SYCM002001				Mean ERM Quotient			1.11
SYCM002001				Mean ERM Quotient without ND			0.06
SYCM002001				Mean ERM Quotient Category			2

**Shipyard Creek**  
**Sediment Mean ERM Quotients**

SAMPLE ID	UNITS	RESULT	VQUAL	PARAMETER	ERL	ERM	ERM QUOTIENT
SYCM002101	MG/KG	13.70		Arsenic (As)	8.20	70.00	0.20
SYCM002101	MG/KG	0.08	J	Cadmium (Cd)	1.20	9.60	0.01
SYCM002101	MG/KG	40.20	J	Chromium (Cr)	81.00	370.00	0.11
SYCM002101	MG/KG	11.30		Copper (Cu)	34.00	270.00	0.04
SYCM002101	MG/KG	17.50		Lead (Pb)	46.70	218.00	0.08
SYCM002101	MG/KG	0.06	U	Mercury (Hg)	0.15	0.71	0.08
SYCM002101	MG/KG	14.50		Nickel (Ni)	20.90	51.60	0.28
SYCM002101	MG/KG	0.50	UJ	Silver (Ag)	1.00	3.70	0.14
SYCM002101	MG/KG	43.20		Zinc (Zn)	150.00	410.00	0.11
SYCM002101	UG/KG	5.51	UJ	4,4'-DDE	2.20	27.00	0.20
SYCM002101	UG/KG	5.51	UJ	4,4'-DDT	1.58	46.10	0.12
SYCM002101	UG/KG	220.30	U	Total PCBs	22.70	180.00	1.22
SYCM002101	UG/KG	550.00	U	2-Methylnaphthalene	70.00	670.00	0.82
SYCM002101	UG/KG	550.00	U	Acenaphthene	16.00	500.00	1.10
SYCM002101	UG/KG	550.00	U	Acenaphthylene	44.00	640.00	0.86
SYCM002101	UG/KG	550.00	U	Anthracene	85.30	1100.00	0.50
SYCM002101	UG/KG	68.00	J	Benzo(a)anthracene	261.00	1600.00	0.04
SYCM002101	UG/KG	60.00	J	Benzo(a)pyrene	430.00	1600.00	0.04
SYCM002101	UG/KG	74.00	J	Chrysene	384.00	2800.00	0.03
SYCM002101	UG/KG	550.00	U	Dibenz(a,h)anthracene	63.40	260.00	2.12
SYCM002101	UG/KG	71.00	J	Fluoranthene	600.00	5100.00	0.01
SYCM002101	UG/KG	550.00	U	Fluorene	19.00	540.00	1.02
SYCM002101	UG/KG	550.00	U	Naphthalene	160.00	2100.00	0.26
SYCM002101	UG/KG	550.00	U	Phenanthrene	240.00	1500.00	0.37
SYCM002101	UG/KG	210.00	J	Pyrene	665.00	2600.00	0.08
ERM Quotient Sum							9.83
SYCM002101	Mean ERM Quotient						0.39
SYCM002101	Mean ERM Quotient without ND						0.04
SYCM002101	Mean ERM Quotient Category						2
SYCM002201	MG/KG	13.80		Arsenic (As)	8.20	70.00	0.20
SYCM002201	MG/KG	0.72	J	Cadmium (Cd)	1.20	9.60	0.08
SYCM002201	MG/KG	37.00	J	Chromium (Cr)	81.00	370.00	0.10
SYCM002201	MG/KG	16.10	J	Copper (Cu)	34.00	270.00	0.06
SYCM002201	MG/KG	19.70	J	Lead (Pb)	46.70	218.00	0.09
SYCM002201	MG/KG	0.13	U	Mercury (Hg)	0.15	0.71	0.18
SYCM002201	MG/KG	10.80	J	Nickel (Ni)	20.90	51.60	0.21
SYCM002201	MG/KG	1.90	U	Silver (Ag)	1.00	3.70	0.51
SYCM002201	MG/KG	69.20	J	Zinc (Zn)	150.00	410.00	0.17
SYCM002201	UG/KG	11.50	U	4,4'-DDE	2.20	27.00	0.43
SYCM002201	UG/KG	11.50	U	4,4'-DDT	1.58	46.10	0.25
SYCM002201	UG/KG	462.00	U	Total PCBs	22.70	180.00	2.57
SYCM002201	UG/KG	1100.00	UJ	2-Methylnaphthalene	70.00	670.00	1.64
SYCM002201	UG/KG	1100.00	UJ	Acenaphthene	16.00	500.00	2.20
SYCM002201	UG/KG	1100.00	UJ	Acenaphthylene	44.00	640.00	1.72
SYCM002201	UG/KG	1100.00	UJ	Anthracene	85.30	1100.00	1.00
SYCM002201	UG/KG	1100.00	UJ	Benzo(a)anthracene	261.00	1600.00	0.69
SYCM002201	UG/KG	1100.00	UJ	Benzo(a)pyrene	430.00	1600.00	0.69
SYCM002201	UG/KG	1100.00	UJ	Chrysene	384.00	2800.00	0.39
SYCM002201	UG/KG	1100.00	UJ	Dibenz(a,h)anthracene	63.40	260.00	4.23
SYCM002201	UG/KG	1100.00	UJ	Fluoranthene	600.00	5100.00	0.22
SYCM002201	UG/KG	1100.00	UJ	Fluorene	19.00	540.00	2.04
SYCM002201	UG/KG	1100.00	UJ	Naphthalene	160.00	2100.00	0.52
SYCM002201	UG/KG	1100.00	UJ	Phenanthrene	240.00	1500.00	0.73
SYCM002201	UG/KG	1100.00	UJ	Pyrene	665.00	2600.00	0.42
ERM Quotient Sum							21.33
SYCM002201	Mean ERM Quotient						0.85
SYCM002201	Mean ERM Quotient without ND						0.04
SYCM002201	Mean ERM Quotient Category						2

**Shipyard Creek**  
**Sediment Mean ERM Quotients**

SAMPLE ID	UNITS	RESULT	VQUAL	PARAMETER	ERL	ERM	ERM QUOTIENT
SYCM016A01	MG/KG	21.30		Arsenic (As)	8.20	70.00	0.30
SYCM016A01	MG/KG	1.10	J	Cadmium (Cd)	1.20	9.60	0.11
SYCM016A01	MG/KG	55.40	J	Chromium (Cr)	81.00	370.00	0.15
SYCM016A01	MG/KG	20.90	J	Copper (Cu)	34.00	270.00	0.08
SYCM016A01	MG/KG	25.40	J	Lead (Pb)	46.70	218.00	0.12
SYCM016A01	MG/KG	0.17	U	Mercury (Hg)	0.15	0.71	0.24
SYCM016A01	MG/KG	16.20	J	Nickel (Ni)	20.90	51.60	0.31
SYCM016A01	MG/KG	2.60	U	Silver (Ag)	1.00	3.70	0.70
SYCM016A01	MG/KG	96.80	J	Zinc (Zn)	150.00	410.00	0.24
SYCM016A01	UG/KG	15.00	U	4,4'-DDE	2.20	27.00	0.56
SYCM016A01	UG/KG	15.00	U	4,4'-DDT	1.58	46.10	0.33
SYCM016A01	UG/KG	602.00	U	Total PCBs	22.70	180.00	3.34
SYCM016A01	UG/KG	1500.00	U	2-Methylnaphthalene	70.00	670.00	2.24
SYCM016A01	UG/KG	1500.00	U	Acenaphthene	16.00	500.00	3.00
SYCM016A01	UG/KG	1500.00	U	Acenaphthylene	44.00	640.00	2.34
SYCM016A01	UG/KG	1500.00	U	Anthracene	85.30	1100.00	1.36
SYCM016A01	UG/KG	1500.00	U	Benzo(a)anthracene	261.00	1600.00	0.94
SYCM016A01	UG/KG	1500.00	U	Benzo(a)pyrene	430.00	1600.00	0.94
SYCM016A01	UG/KG	1500.00	U	Chrysene	384.00	2800.00	0.54
SYCM016A01	UG/KG	1500.00	U	Dibenz(a,h)anthracene	63.40	260.00	0.57
SYCM016A01	UG/KG	180.00	J	Fluoranthene	600.00	5100.00	0.04
SYCM016A01	UG/KG	1500.00	U	Fluorene	19.00	540.00	2.78
SYCM016A01	UG/KG	1500.00	U	Naphthalene	160.00	2100.00	0.71
SYCM016A01	UG/KG	1500.00	U	Phenanthrene	240.00	1500.00	1.00
SYCM016A01	UG/KG	1500.00	U	Pyrene	665.00	2600.00	0.58
				ERM Quotient Sum			28.71
SYCM016A01				Mean ERM Quotient			1.15
SYCM016A01				Mean ERM Quotient without ND			0.05
SYCM016A01				Mean ERM Quotient Category			2
SYCM018A01	MG/KG	11.40	J	Arsenic (As)	8.20	70.00	0.16
SYCM018A01	MG/KG	0.78	J	Cadmium (Cd)	1.20	9.60	0.08
SYCM018A01	MG/KG	39.80	J	Chromium (Cr)	81.00	370.00	0.11
SYCM018A01	MG/KG	15.10	J	Copper (Cu)	34.00	270.00	0.06
SYCM018A01	MG/KG	15.40	J	Lead (Pb)	46.70	218.00	0.07
SYCM018A01	MG/KG	0.06	U	Mercury (Hg)	0.15	0.71	0.08
SYCM018A01	MG/KG	12.90	J	Nickel (Ni)	20.90	51.60	0.25
SYCM018A01	MG/KG	0.97	U	Silver (Ag)	1.00	3.70	0.26
SYCM018A01	MG/KG	56.30	J	Zinc (Zn)	150.00	410.00	0.14
SYCM018A01	UG/KG	5.82	U	4,4'-DDE	2.20	27.00	0.22
SYCM018A01	UG/KG	5.82	U	4,4'-DDT	1.58	46.10	0.13
SYCM018A01	UG/KG	233.60	U	Total PCBs	22.70	180.00	1.30
SYCM018A01	UG/KG	580.00	U	2-Methylnaphthalene	70.00	670.00	0.87
SYCM018A01	UG/KG	580.00	U	Acenaphthene	16.00	500.00	1.16
SYCM018A01	UG/KG	580.00	U	Acenaphthylene	44.00	640.00	0.91
SYCM018A01	UG/KG	580.00	U	Anthracene	85.30	1100.00	0.53
SYCM018A01	UG/KG	60.00	J	Benzo(a)anthracene	261.00	1600.00	0.04
SYCM018A01	UG/KG	580.00	U	Benzo(a)pyrene	430.00	1600.00	0.36
SYCM018A01	UG/KG	76.00	J	Chrysene	384.00	2800.00	0.03
SYCM018A01	UG/KG	580.00	U	Dibenz(a,h)anthracene	63.40	260.00	0.23
SYCM018A01	UG/KG	210.00	J	Fluoranthene	600.00	5100.00	0.04
SYCM018A01	UG/KG	580.00	U	Fluorene	19.00	540.00	1.07
SYCM018A01	UG/KG	580.00	U	Naphthalene	160.00	2100.00	0.28
SYCM018A01	UG/KG	110.00	J	Phenanthrene	240.00	1500.00	0.07
SYCM018A01	UG/KG	180.00	J	Pyrene	665.00	2600.00	0.07
				ERM Quotient Sum			10.50
SYCM018A01				Mean ERM Quotient			0.42
SYCM018A01				Mean ERM Quotient without ND			0.04
SYCM018A01				Mean ERM Quotient Category			2

**Shipyard Creek**  
**Sediment Mean ERM Quotients**

SAMPLE ID	UNITS	RESULT	VQUAL	PARAMETER	ERL	ERM	ERM QUOTIENT
SYCN001601	MG/KG	19.00		Arsenic (As)	8.20	70.00	0.27
SYCN001601	MG/KG	0.90	J	Cadmium (Cd)	1.20	9.60	0.09
SYCN001601	MG/KG	47.20	J	Chromium (Cr)	81.00	370.00	0.13
SYCN001601	MG/KG	19.00	J	Copper (Cu)	34.00	270.00	0.07
SYCN001601	MG/KG	24.50	J	Lead (Pb)	46.70	218.00	0.11
SYCN001601	MG/KG	0.12	U	Mercury (Hg)	0.15	0.71	0.17
SYCN001601	MG/KG	12.90	J	Nickel (Ni)	20.90	51.60	0.25
SYCN001601	MG/KG	2.00	U	Silver (Ag)	1.00	3.70	0.54
SYCN001601	MG/KG	83.60	J	Zinc (Zn)	150.00	410.00	0.20
SYCN001601	UG/KG	13.80	U	4,4'-DDE	2.20	27.00	0.51
SYCN001601	UG/KG	13.80	U	4,4'-DDT	1.58	46.10	0.30
SYCN001601	UG/KG	553.50	U	Total PCBs	22.70	180.00	3.08
SYCN001601	UG/KG	1400.00	UJ	2-Methylnaphthalene	70.00	670.00	2.09
SYCN001601	UG/KG	1400.00	UJ	Acenaphthene	16.00	500.00	2.80
SYCN001601	UG/KG	1400.00	UJ	Acenaphthylene	44.00	640.00	2.19
SYCN001601	UG/KG	1400.00	UJ	Anthracene	85.30	1100.00	1.27
SYCN001601	UG/KG	1400.00	UJ	Benzo(a)anthracene	261.00	1600.00	0.88
SYCN001601	UG/KG	1400.00	UJ	Benzo(a)pyrene	430.00	1600.00	0.88
SYCN001601	UG/KG	1400.00	UJ	Chrysene	384.00	2800.00	0.50
SYCN001601	UG/KG	1400.00	UJ	Dibenz(a,h)anthracene	63.40	260.00	0.58
SYCN001601	UG/KG	1400.00	UJ	Fluoranthene	600.00	5100.00	0.27
SYCN001601	UG/KG	1400.00	UJ	Fluorene	19.00	540.00	2.59
SYCN001601	UG/KG	1400.00	UJ	Naphthalene	160.00	2100.00	0.67
SYCN001601	UG/KG	1400.00	UJ	Phenanthrene	240.00	1500.00	0.93
SYCN001601	UG/KG	1400.00	UJ	Pyrene	665.00	2600.00	0.54
				ERM Quotient Sum			26.71
SYCN001601				Mean ERM Quotient			1.07
SYCN001601				Mean ERM Quotient without ND			0.05
SYCN001601				Mean ERM Quotient Category			2
SYCN001701	MG/KG	25.70		Arsenic (As)	8.20	70.00	0.37
SYCN001701	MG/KG	0.45	J	Cadmium (Cd)	1.20	9.60	0.05
SYCN001701	MG/KG	42.40		Chromium (Cr)	81.00	370.00	0.11
SYCN001701	MG/KG	11.50	J	Copper (Cu)	34.00	270.00	0.04
SYCN001701	MG/KG	17.00		Lead (Pb)	46.70	218.00	0.08
SYCN001701	MG/KG	0.06	U	Mercury (Hg)	0.15	0.71	0.08
SYCN001701	MG/KG	13.90	J	Nickel (Ni)	20.90	51.60	0.27
SYCN001701	MG/KG	0.87	J	Silver (Ag)	1.00	3.70	0.24
SYCN001701	MG/KG	46.10		Zinc (Zn)	150.00	410.00	0.11
SYCN001701	UG/KG	8.18	U	4,4'-DDE	2.20	27.00	0.30
SYCN001701	UG/KG	8.18	U	4,4'-DDT	1.58	46.10	0.18
SYCN001701	UG/KG	328.40	U	Total PCBs	22.70	180.00	1.82
SYCN001701	UG/KG	820.00	U	2-Methylnaphthalene	70.00	670.00	1.22
SYCN001701	UG/KG	820.00	U	Acenaphthene	16.00	500.00	1.64
SYCN001701	UG/KG	820.00	U	Acenaphthylene	44.00	640.00	1.28
SYCN001701	UG/KG	820.00	U	Anthracene	85.30	1100.00	0.75
SYCN001701	UG/KG	820.00	U	Benzo(a)anthracene	261.00	1600.00	0.51
SYCN001701	UG/KG	820.00	U	Benzo(a)pyrene	430.00	1600.00	0.51
SYCN001701	UG/KG	820.00	U	Chrysene	384.00	2800.00	0.29
SYCN001701	UG/KG	820.00	U	Dibenz(a,h)anthracene	63.40	260.00	3.15
SYCN001701	UG/KG	820.00	U	Fluoranthene	600.00	5100.00	0.16
SYCN001701	UG/KG	820.00	U	Fluorene	19.00	540.00	1.52
SYCN001701	UG/KG	820.00	U	Naphthalene	160.00	2100.00	0.39
SYCN001701	UG/KG	820.00	U	Phenanthrene	240.00	1500.00	0.55
SYCN001701	UG/KG	820.00	U	Pyrene	665.00	2600.00	0.32
				ERM Quotient Sum			15.95
SYCN001701				Mean ERM Quotient			0.64
SYCN001701				Mean ERM Quotient without ND			0.05
SYCN001701				Mean ERM Quotient Category			2

**Shipyard Creek**  
**Sediment Mean ERM Quotients**

SAMPLE ID	UNITS	RESULT	VQUAL	PARAMETER	ERL	ERM	ERM QUOTIENT
SYCN002101	MG/KG	15.90		Arsenic (As)	8.20	70.00	0.23
SYCN002101	MG/KG	0.29	J	Cadmium (Cd)	1.20	9.60	0.03
SYCN002101	MG/KG	46.40	J	Chromium (Cr)	81.00	370.00	0.13
SYCN002101	MG/KG	13.90		Copper (Cu)	34.00	270.00	0.05
SYCN002101	MG/KG	17.90		Lead (Pb)	46.70	218.00	0.08
SYCN002101	MG/KG	0.04	U	Mercury (Hg)	0.15	0.71	0.06
SYCN002101	MG/KG	16.00		Nickel (Ni)	20.90	51.60	0.31
SYCN002101	MG/KG	0.53	UJ	Silver (Ag)	1.00	3.70	0.14
SYCN002101	MG/KG	58.90		Zinc (Zn)	150.00	410.00	0.14
SYCN002101	UG/KG	5.92	UJ	4,4'-DDE	2.20	27.00	0.22
SYCN002101	UG/KG	5.92	UJ	4,4'-DDT	1.58	46.10	0.13
SYCN002101	UG/KG	226.60	U	Total PCBs	22.70	180.00	1.26
SYCN002101	UG/KG	610.00	U	2-Methylnaphthalene	70.00	670.00	0.91
SYCN002101	UG/KG	610.00	U	Acenaphthene	16.00	500.00	1.22
SYCN002101	UG/KG	610.00	U	Acenaphthylene	44.00	640.00	0.95
SYCN002101	UG/KG	610.00	U	Anthracene	85.30	1100.00	0.55
SYCN002101	UG/KG	69.00	J	Benzo(a)anthracene	261.00	1600.00	0.04
SYCN002101	UG/KG	610.00	U	Benzo(a)pyrene	430.00	1600.00	0.38
SYCN002101	UG/KG	66.00	J	Chrysene	384.00	2800.00	0.02
SYCN002101	UG/KG	610.00	U	Dibenz(a,h)anthracene	63.40	260.00	2.35
SYCN002101	UG/KG	160.00	J	Fluoranthene	600.00	5100.00	0.03
SYCN002101	UG/KG	610.00	U	Fluorene	19.00	540.00	1.13
SYCN002101	UG/KG	610.00	U	Naphthalene	160.00	2100.00	0.29
SYCN002101	UG/KG	69.00	J	Phenanthrene	240.00	1500.00	0.05
SYCN002101	UG/KG	130.00	J	Pyrene	665.00	2600.00	0.05
				ERM Quotient Sum			10.76
SYCN002101				Mean ERM Quotient			0.43
SYCN002101				Mean ERM Quotient without ND			0.05
SYCN002101				Mean ERM Quotient Category			2
SYCN018A01	MG/KG	12.00		Arsenic (As)	8.20	70.00	0.17
SYCN018A01	MG/KG	0.81	J	Cadmium (Cd)	1.20	9.60	0.08
SYCN018A01	MG/KG	44.30	J	Chromium (Cr)	81.00	370.00	0.12
SYCN018A01	MG/KG	15.90	J	Copper (Cu)	34.00	270.00	0.06
SYCN018A01	MG/KG	16.50	J	Lead (Pb)	46.70	218.00	0.08
SYCN018A01	MG/KG	0.05	U	Mercury (Hg)	0.15	0.71	0.07
SYCN018A01	MG/KG	14.10		Nickel (Ni)	20.90	51.60	0.27
SYCN018A01	MG/KG	0.87	U	Silver (Ag)	1.00	3.70	0.24
SYCN018A01	MG/KG	60.30	J	Zinc (Zn)	150.00	410.00	0.15
SYCN018A01	UG/KG	5.65	U	4,4'-DDE	2.20	27.00	0.21
SYCN018A01	UG/KG	5.65	U	4,4'-DDT	1.58	46.10	0.12
SYCN018A01	UG/KG	227.00	U	Total PCBs	22.70	180.00	1.26
SYCN018A01	UG/KG	560.00	U	2-Methylnaphthalene	70.00	670.00	0.84
SYCN018A01	UG/KG	560.00	U	Acenaphthene	16.00	500.00	1.12
SYCN018A01	UG/KG	560.00	U	Acenaphthylene	44.00	640.00	0.88
SYCN018A01	UG/KG	560.00	U	Anthracene	85.30	1100.00	0.51
SYCN018A01	UG/KG	190.00	J	Benzo(a)anthracene	261.00	1600.00	0.12
SYCN018A01	UG/KG	220.00	J	Benzo(a)pyrene	430.00	1600.00	0.14
SYCN018A01	UG/KG	180.00	J	Chrysene	384.00	2800.00	0.06
SYCN018A01	UG/KG	560.00	U	Dibenz(a,h)anthracene	63.40	260.00	2.15
SYCN018A01	UG/KG	240.00	J	Fluoranthene	600.00	5100.00	0.05
SYCN018A01	UG/KG	560.00	U	Fluorene	19.00	540.00	1.04
SYCN018A01	UG/KG	560.00	U	Naphthalene	160.00	2100.00	0.27
SYCN018A01	UG/KG	560.00	U	Phenanthrene	240.00	1500.00	0.37
SYCN018A01	UG/KG	280.00	J	Pyrene	665.00	2600.00	0.11
				ERM Quotient Sum			10.48
SYCN018A01				Mean ERM Quotient			0.42
SYCN018A01				Mean ERM Quotient without ND			0.06
SYCN018A01				Mean ERM Quotient Category			2

**Shipyard Creek**  
**Sediment Mean ERM Quotients**

SAMPLE ID	UNITS	RESULT	VQUAL	PARAMETER	ERL	ERM	ERM QUOTIENT
009M000101	MG/KG	14.10		Arsenic (As)	8.20	70.00	0.20
009M000101	MG/KG	0.26	U	Cadmium (Cd)	1.20	9.60	0.03
009M000101	MG/KG	132.00		Chromium (Cr)	81.00	370.00	0.36
009M000101	MG/KG	31.40		Copper (Cu)	34.00	270.00	0.12
009M000101	MG/KG	44.80		Lead (Pb)	46.70	218.00	0.21
009M000101	MG/KG	0.16		Mercury (Hg)	0.15	0.71	0.23
009M000101	MG/KG	24.30		Nickel (Ni)	20.90	51.60	0.47
009M000101	MG/KG	0.44	U	Silver (Ag)	1.00	3.70	0.12
009M000101	MG/KG	115.00		Zinc (Zn)	150.00	410.00	0.28
009M000101	UG/KG	4.00		4,4'-DDE	2.20	27.00	0.15
009M000101	UG/KG	9.00	U	4,4'-DDT	1.58	46.10	0.20
<b>009M000101</b>	<b>UG/KG</b>	<b>230.00</b>		<b>Total PCBs</b>	<b>22.70</b>	<b>180.00</b>	<b>1.28</b>
009M000101	UG/KG	88.00	UJ	2-Methylnaphthalene	70.00	670.00	0.13
009M000101	UG/KG	88.00	UJ	Acenaphthene	16.00	500.00	0.18
009M000101	UG/KG	88.00	UJ	Acenaphthylene	44.00	640.00	0.14
009M000101	UG/KG	88.00	UJ	Anthracene	85.30	1100.00	0.08
009M000101	UG/KG	87.00	J	Benzo(a)anthracene	261.00	1600.00	0.05
009M000101	UG/KG	440.00	UJ	Benzo(a)pyrene	430.00	1600.00	0.28
009M000101	UG/KG	440.00	UJ	Chrysene	384.00	2800.00	0.16
009M000101	UG/KG	440.00	UJ	Dibenz(a,h)anthracene	63.40	260.00	1.69
009M000101	UG/KG	230.00	J	Fluoranthene	600.00	5100.00	0.05
009M000101	UG/KG	88.00	UJ	Fluorene	19.00	540.00	0.16
009M000101	UG/KG	440.00	UJ	Naphthalene	160.00	2100.00	0.21
009M000101	UG/KG	440.00	UJ	Phenanthrene	240.00	1500.00	0.29
009M000101	UG/KG	280.00	J	Pyrene	665.00	2600.00	0.11
				ERM Quotient Sum			7.15
009M000101				Mean ERM Quotient			0.29
009M000101				Mean ERM Quotient without ND			0.14
009M000101				Mean ERM Quotient Category			3
<b>009M000201</b>	<b>MG/KG</b>	<b>3.30</b>		<b>Arsenic (As)</b>	<b>8.20</b>	<b>70.00</b>	<b>0.05</b>
009M000201	MG/KG	0.07	U	Cadmium (Cd)	1.20	9.60	0.01
009M000201	MG/KG	17.80		Chromium (Cr)	81.00	370.00	0.05
<b>009M000201</b>	<b>MG/KG</b>	<b>228.00</b>		<b>Copper (Cu)</b>	<b>34.00</b>	<b>270.00</b>	<b>0.84</b>
009M000201	MG/KG	102.00		Lead (Pb)	46.70	218.00	0.47
009M000201	MG/KG	0.02	J	Mercury (Hg)	0.15	0.71	0.03
009M000201	MG/KG	14.20		Nickel (Ni)	20.90	51.60	0.28
009M000201	MG/KG	0.11	U	Silver (Ag)	1.00	3.70	0.03
009M000201	MG/KG	133.00		Zinc (Zn)	150.00	410.00	0.32
009M000201	UG/KG	4.00		4,4'-DDE	2.20	27.00	0.15
009M000201	UG/KG	15.00		4,4'-DDT	1.58	46.10	0.33
<b>009M000201</b>	<b>UG/KG</b>	<b>190.00</b>		<b>Total PCBs</b>	<b>22.70</b>	<b>180.00</b>	<b>1.06</b>
009M000201	UG/KG	210.00	U	2-Methylnaphthalene	70.00	670.00	0.31
009M000201	UG/KG	210.00	U	Acenaphthene	16.00	500.00	0.42
009M000201	UG/KG	210.00	U	Acenaphthylene	44.00	640.00	0.33
009M000201	UG/KG	210.00	U	Anthracene	85.30	1100.00	0.19
009M000201	UG/KG	210.00	U	Benzo(a)anthracene	261.00	1600.00	0.13
009M000201	UG/KG	210.00	U	Benzo(a)pyrene	430.00	1600.00	0.13
009M000201	UG/KG	210.00	U	Chrysene	384.00	2800.00	0.08
009M000201	UG/KG	210.00	U	Dibenz(a,h)anthracene	63.40	260.00	0.81
009M000201	UG/KG	210.00	U	Fluoranthene	600.00	5100.00	0.04
009M000201	UG/KG	210.00	U	Fluorene	19.00	540.00	0.39
009M000201	UG/KG	210.00	U	Naphthalene	160.00	2100.00	0.10
009M000201	UG/KG	210.00	U	Phenanthrene	240.00	1500.00	0.14
009M000201	UG/KG	210.00	U	Pyrene	665.00	2600.00	0.08
				ERM Quotient Sum			6.75
009M000201				Mean ERM Quotient			0.27
009M000201				Mean ERM Quotient without ND			0.14
009M000201				Mean ERM Quotient Category			2

**Shipyard Creek**  
**Sediment Mean ERM Quotients**

SAMPLE ID	UNITS	RESULT	VQUAL	PARAMETER	ERL	ERM	ERM QUOTIENT
009M000301	MG/KG	15.60		Arsenic (As)	8.20	70.00	0.22
009M000301	MG/KG	0.23	J	Cadmium (Cd)	1.20	9.60	0.02
009M000301	MG/KG	48.30		Chromium (Cr)	81.00	370.00	0.13
009M000301	MG/KG	28.70		Copper (Cu)	34.00	270.00	0.11
009M000301	MG/KG	74.50		Lead (Pb)	46.70	218.00	0.34
009M000301	MG/KG	0.51		Mercury (Hg)	0.15	0.71	0.72
009M000301	MG/KG	18.30		Nickel (Ni)	20.90	51.60	0.35
009M000301	MG/KG	0.28	U	Silver (Ag)	1.00	3.70	0.08
009M000301	MG/KG	121.00		Zinc (Zn)	150.00	410.00	0.30
009M000301	UG/KG	21.00		4,4'-DDE	2.20	27.00	0.78
009M000301	UG/KG	10.00	U	4,4'-DDT	1.58	46.10	0.22
009M000301	UG/KG	175.00	U	Total PCBs	22.70	180.00	0.97
009M000301	UG/KG	110.00	UR	2-Methylnaphthalene	70.00	670.00	0.16
009M000301	UG/KG	110.00	UR	Acenaphthene	16.00	500.00	0.22
009M000301	UG/KG	110.00	UR	Acenaphthylene	44.00	640.00	0.17
009M000301	UG/KG	110.00	UR	Anthracene	85.30	1100.00	0.10
009M000301	UG/KG	530.00	UR	Benzo(a)anthracene	261.00	1600.00	0.33
009M000301	UG/KG	530.00	UR	Benzo(a)pyrene	430.00	1600.00	0.33
009M000301	UG/KG	530.00	UR	Chrysene	384.00	2800.00	0.19
009M000301	UG/KG	530.00	UR	Dibenz(a,h)anthracene	63.40	260.00	2.04
009M000301	UG/KG	190.00	UR	Fluoranthene	600.00	5100.00	0.04
009M000301	UG/KG	110.00	UR	Fluorene	19.00	540.00	0.20
009M000301	UG/KG	530.00	UR	Naphthalene	160.00	2100.00	0.25
009M000301	UG/KG	530.00	UR	Phenanthrene	240.00	1500.00	0.35
009M000301	UG/KG	180.00	UR	Pyrene	665.00	2600.00	0.07
				ERM Quotient Sum			8.70
009M000301				Mean ERM Quotient			0.35
009M000301				Mean ERM Quotient without ND			0.12
009M000301				Mean ERM Quotient Category			2
009M000401	MG/KG	11.90		Arsenic (As)	8.20	70.00	0.17
009M000401	MG/KG	0.64	J	Cadmium (Cd)	1.20	9.60	0.07
009M000401	MG/KG	291.00		Chromium (Cr)	81.00	370.00	0.79
009M000401	MG/KG	141.00		Copper (Cu)	34.00	270.00	0.52
009M000401	MG/KG	107.00		Lead (Pb)	46.70	218.00	0.49
009M000401	MG/KG	0.69		Mercury (Hg)	0.15	0.71	0.97
009M000401	MG/KG	37.30		Nickel (Ni)	20.90	51.60	0.72
009M000401	MG/KG	0.46	U	Silver (Ag)	1.00	3.70	0.12
009M000401	MG/KG	387.00		Zinc (Zn)	150.00	410.00	0.94
009M000401	UG/KG	110.00		4,4'-DDE	2.20	27.00	4.07
009M000401	UG/KG	50.00	U	4,4'-DDT	1.58	46.10	1.08
009M000401	UG/KG	4860.00		Total PCBs	22.70	180.00	27.00
009M000401	UG/KG	3600.00	U	2-Methylnaphthalene	70.00	670.00	5.37
009M000401	UG/KG	3600.00	U	Acenaphthene	16.00	500.00	7.20
009M000401	UG/KG	3600.00	U	Acenaphthylene	44.00	640.00	5.63
009M000401	UG/KG	3600.00	U	Anthracene	85.30	1100.00	3.27
009M000401	UG/KG	18000.00	U	Benzo(a)anthracene	261.00	1600.00	11.25
009M000401	UG/KG	18000.00	U	Benzo(a)pyrene	430.00	1600.00	11.25
009M000401	UG/KG	18000.00	U	Chrysene	384.00	2800.00	6.43
009M000401	UG/KG	18000.00	U	Dibenz(a,h)anthracene	63.40	260.00	69.23
009M000401	UG/KG	9500.00	J	Fluoranthene	600.00	5100.00	1.86
009M000401	UG/KG	3600.00	U	Fluorene	19.00	540.00	6.67
009M000401	UG/KG	18000.00	U	Naphthalene	160.00	2100.00	8.57
009M000401	UG/KG	18000.00	U	Phenanthrene	240.00	1500.00	12.00
009M000401	UG/KG	6400.00	J	Pyrene	665.00	2600.00	2.46
				ERM Quotient Sum			188.15
009M000401				Mean ERM Quotient			7.53
009M000401				Mean ERM Quotient without ND			1.60
009M000401				Mean ERM Quotient Category			4

**Shipyard Creek**  
**Sediment Mean ERM Quotients**

SAMPLE ID	UNITS	RESULT	VQUAL	PARAMETER	ERL	ERM	ERM QUOTIENT
009M000501	MG/KG	7.30		Arsenic (As)	8.20	70.00	0.10
009M000501	MG/KG	0.61	J	Cadmium (Cd)	1.20	9.60	0.06
009M000501	MG/KG	168.00		Chromium (Cr)	81.00	370.00	0.45
009M000501	MG/KG	90.00		Copper (Cu)	34.00	270.00	0.33
009M000501	MG/KG	74.80		Lead (Pb)	46.70	218.00	0.34
009M000501	MG/KG	0.33		Mercury (Hg)	0.15	0.71	0.46
009M000501	MG/KG	21.20		Nickel (Ni)	20.90	51.60	0.41
009M000501	MG/KG	0.34	U	Silver (Ag)	1.00	3.70	0.09
009M000501	MG/KG	261.00		Zinc (Zn)	150.00	410.00	0.64
<b>009M000501</b>	<b>UG/KG</b>	<b>150.00</b>		<b>4,4'-DDE</b>	<b>2.20</b>	<b>27.00</b>	<b>5.56</b>
<b>009M000501</b>	<b>UG/KG</b>	<b>140.00</b>		<b>4,4'-DDT</b>	<b>1.58</b>	<b>46.10</b>	<b>3.04</b>
<b>009M000501</b>	<b>UG/KG</b>	<b>1390.00</b>		<b>Total PCBs</b>	<b>22.70</b>	<b>180.00</b>	<b>7.72</b>
009M000501	UG/KG	130.00	U	2-Methylnaphthalene	70.00	670.00	0.19
009M000501	UG/KG	130.00	U	Acenaphthene	16.00	500.00	0.26
009M000501	UG/KG	130.00	U	Acenaphthylene	44.00	640.00	0.20
009M000501	UG/KG	130.00	U	Anthracene	85.30	1100.00	0.12
009M000501	UG/KG	140.00	J	Benzo(a)anthracene	261.00	1600.00	0.09
009M000501	UG/KG	640.00	U	Benzo(a)pyrene	430.00	1600.00	0.40
009M000501	UG/KG	640.00	U	Chrysene	384.00	2800.00	0.23
009M000501	UG/KG	640.00	U	Dibenz(a,h)anthracene	63.40	260.00	2.46
009M000501	UG/KG	350.00	J	Fluoranthene	600.00	5100.00	0.07
009M000501	UG/KG	130.00	U	Fluorene	19.00	540.00	0.24
009M000501	UG/KG	640.00	U	Naphthalene	160.00	2100.00	0.30
009M000501	UG/KG	640.00	U	Phenanthrene	240.00	1500.00	0.43
009M000501	UG/KG	340.00	J	Pyrene	665.00	2600.00	0.13
				ERM Quotient Sum			24.34
009M000501				Mean ERM Quotient			0.97
009M000501				Mean ERM Quotient without ND			0.78
009M000501				Mean ERM Quotient Category			3
<b>009M000601</b>	<b>MG/KG</b>	<b>8.60</b>	<b>J</b>	<b>Arsenic (As)</b>	<b>8.20</b>	<b>70.00</b>	<b>0.12</b>
009M000601	MG/KG	0.38	J	Cadmium (Cd)	1.20	9.60	0.04
009M000601	MG/KG	55.00		Chromium (Cr)	81.00	370.00	0.15
009M000601	MG/KG	9.90		Copper (Cu)	34.00	270.00	0.04
009M000601	MG/KG	2.20	U	Lead (Pb)	46.70	218.00	0.01
009M000601	MG/KG	0.04	J	Mercury (Hg)	0.15	0.71	0.06
<b>009M000601</b>	<b>MG/KG</b>	<b>24.60</b>		<b>Nickel (Ni)</b>	<b>20.90</b>	<b>51.60</b>	<b>0.48</b>
009M000601	MG/KG	0.35	U	Silver (Ag)	1.00	3.70	0.09
009M000601	MG/KG	56.80		Zinc (Zn)	150.00	410.00	0.14
009M000601	UG/KG	2.00		4,4'-DDE	2.20	27.00	0.07
009M000601	UG/KG	5.00	U	4,4'-DDT	1.58	46.10	0.11
009M000601	UG/KG	70.00	U	Total PCBs	22.70	180.00	0.39
009M000601	UG/KG	240.00	U	2-Methylnaphthalene	70.00	670.00	0.36
009M000601	UG/KG	240.00	U	Acenaphthene	16.00	500.00	0.48
009M000601	UG/KG	240.00	U	Acenaphthylene	44.00	640.00	0.38
009M000601	UG/KG	240.00	U	Anthracene	85.30	1100.00	0.22
009M000601	UG/KG	240.00	U	Benzo(a)anthracene	261.00	1600.00	0.15
009M000601	UG/KG	240.00	U	Benzo(a)pyrene	430.00	1600.00	0.15
009M000601	UG/KG	240.00	U	Chrysene	384.00	2800.00	0.09
009M000601	UG/KG	240.00	U	Dibenz(a,h)anthracene	63.40	260.00	0.92
009M000601	UG/KG	240.00	U	Fluoranthene	600.00	5100.00	0.05
009M000601	UG/KG	240.00	U	Fluorene	19.00	540.00	0.44
009M000601	UG/KG	240.00	U	Naphthalene	160.00	2100.00	0.11
009M000601	UG/KG	240.00	U	Phenanthrene	240.00	1500.00	0.16
009M000601	UG/KG	240.00	U	Pyrene	665.00	2600.00	0.09
				ERM Quotient Sum			5.29
009M000601				Mean ERM Quotient			0.21
009M000601				Mean ERM Quotient without ND			0.04
009M000601				Mean ERM Quotient Category			2

**Shipyard Creek**  
**Sediment Mean ERM Quotients**

SAMPLE ID	UNITS	RESULT	VQUAL	PARAMETER	ERL	ERM	ERM QUOTIENT
009M000701	MG/KG	5.30		Arsenic (As)	8.20	70.00	0.08
009M000701	MG/KG	1.20	J	Cadmium (Cd)	1.20	9.60	0.13
009M000701	MG/KG	36.10		Chromium (Cr)	81.00	370.00	0.10
009M000701	MG/KG	6.30	J	Copper (Cu)	34.00	270.00	0.02
009M000701	MG/KG	8.50	U	Lead (Pb)	46.70	218.00	0.04
009M000701	MG/KG	0.02	U	Mercury (Hg)	0.15	0.71	0.03
009M000701	MG/KG	21.30		Nickel (Ni)	20.90	51.60	0.41
009M000701	MG/KG	1.40	U	Silver (Ag)	1.00	3.70	0.38
009M000701	MG/KG	41.50		Zinc (Zn)	150.00	410.00	0.10
009M000701	UG/KG	2.00	U	4,4'-DDE	2.20	27.00	0.07
009M000701	UG/KG	4.00	U	4,4'-DDT	1.58	46.10	0.09
009M000701	UG/KG	70.00	U	Total PCBs	22.70	180.00	0.39
009M000701	UG/KG	220.00	U	2-Methylnaphthalene	70.00	670.00	0.33
009M000701	UG/KG	220.00	U	Acenaphthene	16.00	500.00	0.44
009M000701	UG/KG	220.00	U	Acenaphthylene	44.00	640.00	0.34
009M000701	UG/KG	220.00	U	Anthracene	85.30	1100.00	0.20
009M000701	UG/KG	220.00	U	Benzo(a)anthracene	261.00	1600.00	0.14
009M000701	UG/KG	220.00	U	Benzo(a)pyrene	430.00	1600.00	0.14
009M000701	UG/KG	220.00	U	Chrysene	384.00	2800.00	0.08
009M000701	UG/KG	220.00	U	Dibenz(a,h)anthracene	63.40	260.00	0.85
009M000701	UG/KG	220.00	U	Fluoranthene	600.00	5100.00	0.04
009M000701	UG/KG	220.00	U	Fluorene	19.00	540.00	0.41
009M000701	UG/KG	220.00	U	Naphthalene	160.00	2100.00	0.10
009M000701	UG/KG	220.00	U	Phenanthrene	240.00	1500.00	0.15
009M000701	UG/KG	220.00	U	Pyrene	665.00	2600.00	0.08
				ERM Quotient Sum			5.13
009M000701				Mean ERM Quotient			0.21
009M000701				Mean ERM Quotient without ND			0.03
009M000701				Mean ERM Quotient Category			2

009M000801	MG/KG	8.50		Arsenic (As)	8.20	70.00	0.12
009M000801	MG/KG	1.70	J	Cadmium (Cd)	1.20	9.60	0.18
009M000801	MG/KG	50.90		Chromium (Cr)	81.00	370.00	0.14
009M000801	MG/KG	13.30		Copper (Cu)	34.00	270.00	0.05
009M000801	MG/KG	10.10	U	Lead (Pb)	46.70	218.00	0.05
009M000801	MG/KG	0.03	J	Mercury (Hg)	0.15	0.71	0.04
009M000801	MG/KG	19.90		Nickel (Ni)	20.90	51.60	0.39
009M000801	MG/KG	1.60	U	Silver (Ag)	1.00	3.70	0.43
009M000801	MG/KG	82.20		Zinc (Zn)	150.00	410.00	0.20
009M000801	UG/KG	3.00	U	4,4'-DDE	2.20	27.00	0.11
009M000801	UG/KG	6.00	U	4,4'-DDT	1.58	46.10	0.13
009M000801	UG/KG	105.00	U	Total PCBs	22.70	180.00	0.58
009M000801	UG/KG	300.00	U	2-Methylnaphthalene	70.00	670.00	0.45
009M000801	UG/KG	300.00	U	Acenaphthene	16.00	500.00	0.60
009M000801	UG/KG	300.00	U	Acenaphthylene	44.00	640.00	0.47
009M000801	UG/KG	300.00	U	Anthracene	85.30	1100.00	0.27
009M000801	UG/KG	300.00	U	Benzo(a)anthracene	261.00	1600.00	0.19
009M000801	UG/KG	300.00	U	Benzo(a)pyrene	430.00	1600.00	0.19
009M000801	UG/KG	300.00	U	Chrysene	384.00	2800.00	0.11
009M000801	UG/KG	300.00	U	Dibenz(a,h)anthracene	63.40	260.00	1.15
009M000801	UG/KG	300.00	U	Fluoranthene	600.00	5100.00	0.06
009M000801	UG/KG	300.00	U	Fluorene	19.00	540.00	0.56
009M000801	UG/KG	300.00	U	Naphthalene	160.00	2100.00	0.14
009M000801	UG/KG	300.00	U	Phenanthrene	240.00	1500.00	0.20
009M000801	UG/KG	300.00	U	Pyrene	665.00	2600.00	0.12
				ERM Quotient Sum			6.91
009M000801				Mean ERM Quotient			0.28
009M000801				Mean ERM Quotient without ND			0.04
009M000801				Mean ERM Quotient Category			2

**Shipyard Creek**  
**Sediment Mean ERM Quotients**

SAMPLE ID	UNITS	RESULT	VQUAL	PARAMETER	ERL	ERM	ERM QUOTIENT
009M000901	MG/KG	0.62	J	Arsenic (As)	8.20	70.00	0.01
009M000901	MG/KG	0.15	U	Cadmium (Cd)	1.20	9.60	0.02
009M000901	MG/KG	6.50		Chromium (Cr)	81.00	370.00	0.02
<b>009M000901</b>	<b>MG/KG</b>	<b>53.70</b>		<b>Copper (Cu)</b>	<b>34.00</b>	<b>270.00</b>	<b>0.20</b>
009M000901	MG/KG	5.30		Lead (Pb)	46.70	218.00	0.02
009M000901	MG/KG	0.05	J	Mercury (Hg)	0.15	0.71	0.07
009M000901	MG/KG	2.80		Nickel (Ni)	20.90	51.60	0.05
009M000901	MG/KG	0.25	U	Silver (Ag)	1.00	3.70	0.07
009M000901	MG/KG	8.50		Zinc (Zn)	150.00	410.00	0.02
009M000901	UG/KG	2.00	U	4,4'-DDE	2.20	27.00	0.07
<b>009M000901</b>	<b>UG/KG</b>	<b>3.00</b>	<b>J</b>	<b>4,4'-DDT</b>	<b>1.58</b>	<b>46.10</b>	<b>0.07</b>
009M000901	UG/KG	70.00	U	Total PCBs	22.70	180.00	0.39
009M000901	UG/KG	190.00	U	2-Methylnaphthalene	70.00	670.00	0.28
009M000901	UG/KG	190.00	U	Acenaphthene	16.00	500.00	0.38
009M000901	UG/KG	190.00	U	Acenaphthylene	44.00	640.00	0.30
009M000901	UG/KG	190.00	U	Anthracene	85.30	1100.00	0.17
009M000901	UG/KG	190.00	U	Benzo(a)anthracene	261.00	1600.00	0.12
009M000901	UG/KG	190.00	U	Benzo(a)pyrene	430.00	1600.00	0.12
009M000901	UG/KG	190.00	U	Chrysene	384.00	2800.00	0.07
009M000901	UG/KG	190.00	U	Dibenz(a,h)anthracene	63.40	260.00	0.73
009M000901	UG/KG	190.00	U	Fluoranthene	600.00	5100.00	0.04
009M000901	UG/KG	190.00	U	Fluorene	19.00	540.00	0.35
009M000901	UG/KG	190.00	U	Naphthalene	160.00	2100.00	0.09
009M000901	UG/KG	190.00	U	Phenanthrene	240.00	1500.00	0.13
009M000901	UG/KG	190.00	U	Pyrene	665.00	2600.00	0.07
				ERM Quotient Sum			3.85
009M000901				Mean ERM Quotient			0.15
009M000901				Mean ERM Quotient without ND			0.02
009M000901				Mean ERM QuotientCategory			2
<b>009M001001</b>	<b>MG/KG</b>	<b>7.70</b>		<b>Arsenic (As)</b>	<b>8.20</b>	<b>70.00</b>	<b>0.11</b>
009M001001	MG/KG	0.70	J	Cadmium (Cd)	1.20	9.60	0.07
009M001001	MG/KG	45.50		Chromium (Cr)	81.00	370.00	0.12
<b>009M001001</b>	<b>MG/KG</b>	<b>42.80</b>		<b>Copper (Cu)</b>	<b>34.00</b>	<b>270.00</b>	<b>0.16</b>
009M001001	MG/KG	15.80	J	Lead (Pb)	46.70	218.00	0.07
009M001001	MG/KG	0.13		Mercury (Hg)	0.15	0.71	0.18
009M001001	MG/KG	15.80		Nickel (Ni)	20.90	51.60	0.31
009M001001	MG/KG	1.00	U	Silver (Ag)	1.00	3.70	0.27
009M001001	MG/KG	111.00		Zinc (Zn)	150.00	410.00	0.27
<b>009M001001</b>	<b>UG/KG</b>	<b>11.00</b>		<b>4,4'-DDE</b>	<b>2.20</b>	<b>27.00</b>	<b>0.41</b>
009M001001	UG/KG	16.00		4,4'-DDT	1.58	46.10	0.35
<b>009M001001</b>	<b>UG/KG</b>	<b>300.00</b>		<b>Total PCBs</b>	<b>22.70</b>	<b>180.00</b>	<b>1.67</b>
009M001001	UG/KG	280.00	U	2-Methylnaphthalene	70.00	670.00	0.42
009M001001	UG/KG	280.00	U	Acenaphthene	16.00	500.00	0.56
009M001001	UG/KG	280.00	U	Acenaphthylene	44.00	640.00	0.44
009M001001	UG/KG	280.00	U	Anthracene	85.30	1100.00	0.25
009M001001	UG/KG	280.00	U	Benzo(a)anthracene	261.00	1600.00	0.18
009M001001	UG/KG	280.00	U	Benzo(a)pyrene	430.00	1600.00	0.18
009M001001	UG/KG	280.00	U	Chrysene	384.00	2800.00	0.10
009M001001	UG/KG	280.00	U	Dibenz(a,h)anthracene	63.40	260.00	1.08
009M001001	UG/KG	280.00	U	Fluoranthene	600.00	5100.00	0.05
009M001001	UG/KG	280.00	U	Fluorene	19.00	540.00	0.52
009M001001	UG/KG	280.00	U	Naphthalene	160.00	2100.00	0.13
009M001001	UG/KG	280.00	U	Phenanthrene	240.00	1500.00	0.19
009M001001	UG/KG	280.00	U	Pyrene	665.00	2600.00	0.11
				ERM Quotient Sum			8.19
009M001001				Mean ERM Quotient			0.33
009M001001				Mean ERM Quotient without ND			0.15
009M001001				Mean ERM Quotient Category			2

**Shipyard Creek**  
**Sediment Mean ERM Quotients**

SAMPLE ID	UNITS	RESULT	VQUAL	PARAMETER	ERL	ERM	ERM QUOTIENT
009M001101	MG/KG	13.30		Arsenic (As)	8.20	70.00	0.19
009M001101	MG/KG	0.14	U	Cadmium (Cd)	1.20	9.60	0.01
009M001101	MG/KG	47.50		Chromium (Cr)	81.00	370.00	0.13
009M001101	MG/KG	18.70		Copper (Cu)	34.00	270.00	0.07
009M001101	MG/KG	22.60		Lead (Pb)	46.70	218.00	0.10
009M001101	MG/KG	0.12		Mercury (Hg)	0.15	0.71	0.17
009M001101	MG/KG	17.70		Nickel (Ni)	20.90	51.60	0.34
009M001101	MG/KG	0.24	U	Silver (Ag)	1.00	3.70	0.06
009M001101	MG/KG	118.00		Zinc (Zn)	150.00	410.00	0.29
009M001101	UG/KG	3.00	J	4,4'-DDE	2.20	27.00	0.11
009M001101	UG/KG	8.00	U	4,4'-DDT	1.58	46.10	0.17
009M001101	UG/KG	140.00	U	Total PCBs	22.70	180.00	0.78
009M001101	UG/KG	80.00	U	2-Methylnaphthalene	70.00	670.00	0.12
009M001101	UG/KG	80.00	U	Acenaphthene	16.00	500.00	0.16
009M001101	UG/KG	80.00	U	Acenaphthylene	44.00	640.00	0.13
009M001101	UG/KG	80.00	U	Anthracene	85.30	1100.00	0.07
009M001101	UG/KG	420.00	U	Benzo(a)anthracene	261.00	1600.00	0.26
009M001101	UG/KG	420.00	U	Benzo(a)pyrene	430.00	1600.00	0.26
009M001101	UG/KG	420.00	U	Chrysene	384.00	2800.00	0.15
009M001101	UG/KG	420.00	U	Dibenz(a,h)anthracene	63.40	260.00	1.62
009M001101	UG/KG	420.00	U	Fluoranthene	600.00	5100.00	0.08
009M001101	UG/KG	80.00	U	Fluorene	19.00	540.00	0.15
009M001101	UG/KG	420.00	U	Naphthalene	160.00	2100.00	0.20
009M001101	UG/KG	420.00	U	Phenanthrene	240.00	1500.00	0.28
009M001101	UG/KG	420.00	U	Pyrene	665.00	2600.00	0.16
				ERM Quotient Sum			6.07
009M001101				Mean ERM Quotient			0.24
009M001101				Mean ERM Quotient without ND			0.06
009M001101				Mean ERM Quotient Category			2
009M001201	MG/KG	6.30		Arsenic (As)	8.20	70.00	0.09
009M001201	MG/KG	0.24	J	Cadmium (Cd)	1.20	9.60	0.03
009M001201	MG/KG	25.90		Chromium (Cr)	81.00	370.00	0.07
009M001201	MG/KG	9.10		Copper (Cu)	34.00	270.00	0.03
009M001201	MG/KG	1.90	U	Lead (Pb)	46.70	218.00	0.01
009M001201	MG/KG	0.03	J	Mercury (Hg)	0.15	0.71	0.04
009M001201	MG/KG	12.90		Nickel (Ni)	20.90	51.60	0.25
009M001201	MG/KG	0.30	U	Silver (Ag)	1.00	3.70	0.08
009M001201	MG/KG	29.30		Zinc (Zn)	150.00	410.00	0.07
009M001201	UG/KG	2.00	U	4,4'-DDE	2.20	27.00	0.07
009M001201	UG/KG	4.00	U	4,4'-DDT	1.58	46.10	0.09
009M001201	UG/KG	70.00	U	Total PCBs	22.70	180.00	0.39
009M001201	UG/KG	200.00	U	2-Methylnaphthalene	70.00	670.00	0.30
009M001201	UG/KG	200.00	U	Acenaphthene	16.00	500.00	0.40
009M001201	UG/KG	200.00	U	Acenaphthylene	44.00	640.00	0.31
009M001201	UG/KG	200.00	U	Anthracene	85.30	1100.00	0.18
009M001201	UG/KG	200.00	U	Benzo(a)anthracene	261.00	1600.00	0.13
009M001201	UG/KG	200.00	U	Benzo(a)pyrene	430.00	1600.00	0.13
009M001201	UG/KG	200.00	U	Chrysene	384.00	2800.00	0.07
009M001201	UG/KG	200.00	U	Dibenz(a,h)anthracene	63.40	260.00	0.77
009M001201	UG/KG	200.00	U	Fluoranthene	600.00	5100.00	0.04
009M001201	UG/KG	200.00	U	Fluorene	19.00	540.00	0.37
009M001201	UG/KG	200.00	U	Naphthalene	160.00	2100.00	0.10
009M001201	UG/KG	200.00	U	Phenanthrene	240.00	1500.00	0.13
009M001201	UG/KG	200.00	U	Pyrene	665.00	2600.00	0.08
				ERM Quotient Sum			4.22
009M001201				Mean ERM Quotient			0.17
009M001201				Mean ERM Quotient without ND			0.02
009M001201				Mean ERM Quotient Category			1

**Shipyard Creek**  
**Sediment Mean ERM Quotients**

SAMPLE ID	UNITS	RESULT	VQUAL	PARAMETER	ERL	ERM	ERM QUOTIENT
009M001301	MG/KG	19.50		Arsenic (As)	8.20	70.00	0.28
009M001301	MG/KG	0.11	U	Cadmium (Cd)	1.20	9.60	0.01
009M001301	MG/KG	59.20		Chromium (Cr)	81.00	370.00	0.16
009M001301	MG/KG	46.00		Copper (Cu)	34.00	270.00	0.17
009M001301	MG/KG	34.40		Lead (Pb)	46.70	218.00	0.16
009M001301	MG/KG	0.16		Mercury (Hg)	0.15	0.71	0.23
009M001301	MG/KG	18.60		Nickel (Ni)	20.90	51.60	0.36
009M001301	MG/KG	0.19	U	Silver (Ag)	1.00	3.70	0.05
009M001301	MG/KG	126.00		Zinc (Zn)	150.00	410.00	0.31
<b>009M001301</b>	<b>UG/KG</b>	<b>36.00</b>		<b>4,4'-DDE</b>	<b>2.20</b>	<b>27.00</b>	<b>1.33</b>
009M001301	UG/KG	18.00		4,4'-DDT	1.58	46.10	0.39
<b>009M001301</b>	<b>UG/KG</b>	<b>350.00</b>		<b>Total PCBs</b>	<b>22.70</b>	<b>180.00</b>	<b>1.94</b>
009M001301	UG/KG	70.00	U	2-Methylnaphthalene	70.00	670.00	0.10
009M001301	UG/KG	70.00	U	Acenaphthene	16.00	500.00	0.14
009M001301	UG/KG	70.00	U	Acenaphthylene	44.00	640.00	0.11
009M001301	UG/KG	70.00	U	Anthracene	85.30	1100.00	0.06
009M001301	UG/KG	350.00	U	Benzo(a)anthracene	261.00	1600.00	0.22
009M001301	UG/KG	350.00	U	Benzo(a)pyrene	430.00	1600.00	0.22
009M001301	UG/KG	350.00	U	Chrysene	384.00	2800.00	0.13
009M001301	UG/KG	350.00	U	Dibenz(a,h)anthracene	63.40	260.00	1.35
009M001301	UG/KG	350.00	U	Fluoranthene	600.00	5100.00	0.07
009M001301	UG/KG	70.00	U	Fluorene	19.00	540.00	0.13
009M001301	UG/KG	350.00	U	Naphthalene	160.00	2100.00	0.17
009M001301	UG/KG	350.00	U	Phenanthrene	240.00	1500.00	0.23
009M001301	UG/KG	350.00	U	Pyrene	665.00	2600.00	0.13
				ERM Quotient Sum			8.45
009M001301				Mean ERM Quotient			0.34
009M001301				Mean ERM Quotient without ND			0.21
009M001301				Mean ERM Quotient Category			3
009M001401	MG/KG	14.50		Arsenic (As)	8.20	70.00	0.21
009M001401	MG/KG	0.70	U	Cadmium (Cd)	1.20	9.60	0.07
009M001401	MG/KG	47.50		Chromium (Cr)	81.00	370.00	0.13
009M001401	MG/KG	31.70		Copper (Cu)	34.00	270.00	0.12
<b>009M001401</b>	<b>MG/KG</b>	<b>92.20</b>		<b>Lead (Pb)</b>	<b>46.70</b>	<b>218.00</b>	<b>0.42</b>
<b>009M001401</b>	<b>MG/KG</b>	<b>0.26</b>		<b>Mercury (Hg)</b>	<b>0.15</b>	<b>0.71</b>	<b>0.37</b>
009M001401	MG/KG	14.60		Nickel (Ni)	20.90	51.60	0.28
009M001401	MG/KG	1.20	U	Silver (Ag)	1.00	3.70	0.32
009M001401	MG/KG	147.00		Zinc (Zn)	150.00	410.00	0.36
<b>009M001401</b>	<b>UG/KG</b>	<b>13.00</b>		<b>4,4'-DDE</b>	<b>2.20</b>	<b>27.00</b>	<b>0.48</b>
<b>009M001401</b>	<b>UG/KG</b>	<b>29.00</b>		<b>4,4'-DDT</b>	<b>1.58</b>	<b>46.10</b>	<b>0.63</b>
<b>009M001401</b>	<b>UG/KG</b>	<b>480.00</b>		<b>Total PCBs</b>	<b>22.70</b>	<b>180.00</b>	<b>2.67</b>
009M001401	UG/KG	80.00	U	2-Methylnaphthalene	70.00	670.00	0.12
<b>009M001401</b>	<b>UG/KG</b>	<b>230.00</b>		<b>Acenaphthene</b>	<b>16.00</b>	<b>500.00</b>	<b>0.46</b>
009M001401	UG/KG	80.00	U	Acenaphthylene	44.00	640.00	0.13
009M001401	UG/KG	80.00	U	Anthracene	85.30	1100.00	0.07
009M001401	UG/KG	410.00	U	Benzo(a)anthracene	261.00	1600.00	0.26
009M001401	UG/KG	410.00	U	Benzo(a)pyrene	430.00	1600.00	0.26
009M001401	UG/KG	140.00	J	Chrysene	384.00	2800.00	0.05
009M001401	UG/KG	410.00	U	Dibenz(a,h)anthracene	63.40	260.00	1.58
009M001401	UG/KG	120.00	J	Fluoranthene	600.00	5100.00	0.02
<b>009M001401</b>	<b>UG/KG</b>	<b>160.00</b>		<b>Fluorene</b>	<b>19.00</b>	<b>540.00</b>	<b>0.30</b>
009M001401	UG/KG	410.00	U	Naphthalene	160.00	2100.00	0.20
009M001401	UG/KG	150.00	J	Phenanthrene	240.00	1500.00	0.10
009M001401	UG/KG	110.00	J	Pyrene	665.00	2600.00	0.04
				ERM Quotient Sum			9.63
009M001401				Mean ERM Quotient			0.39
009M001401				Mean ERM Quotient without ND			0.27
009M001401				Mean ERM Quotient Category			3

**Shipyard Creek**  
**Sediment Mean ERM Quotients**

SAMPLE ID	UNITS	RESULT	VQUAL	PARAMETER	ERL	ERM	ERM QUOTIENT
009M001501	MG/KG	8.50		Arsenic (As)	8.20	70.00	0.12
009M001501	MG/KG	0.62		Cadmium (Cd)	1.20	9.60	0.06
009M001501	MG/KG	40.80		Chromium (Cr)	81.00	370.00	0.11
009M001501	MG/KG	25.40		Copper (Cu)	34.00	270.00	0.09
009M001501	MG/KG	74.20		Lead (Pb)	46.70	218.00	0.34
009M001501	MG/KG	0.15		Mercury (Hg)	0.15	0.71	0.21
009M001501	MG/KG	17.90		Nickel (Ni)	20.90	51.60	0.35
009M001501	MG/KG	0.18	U	Silver (Ag)	1.00	3.70	0.05
009M001501	MG/KG	131.00		Zinc (Zn)	150.00	410.00	0.32
009M001501	UG/KG	15.00		4,4'-DDE	2.20	27.00	0.56
<b>009M001501</b>	<b>UG/KG</b>	<b>51.00</b>		<b>4,4'-DDT</b>	<b>1.58</b>	<b>46.10</b>	<b>1.11</b>
<b>009M001501</b>	<b>UG/KG</b>	<b>1190.00</b>		<b>Total PCBs</b>	<b>22.70</b>	<b>180.00</b>	<b>6.61</b>
009M001501	UG/KG	70.00	U	2-Methylnaphthalene	70.00	670.00	0.10
009M001501	UG/KG	70.00	U	Acenaphthene	16.00	500.00	0.14
009M001501	UG/KG	70.00	U	Acenaphthylene	44.00	640.00	0.11
009M001501	UG/KG	70.00	U	Anthracene	85.30	1100.00	0.06
009M001501	UG/KG	350.00	U	Benzo(a)anthracene	261.00	1600.00	0.22
009M001501	UG/KG	350.00	U	Benzo(a)pyrene	430.00	1600.00	0.22
009M001501	UG/KG	350.00	U	Chrysene	384.00	2800.00	0.13
009M001501	UG/KG	350.00	U	Dibenz(a,h)anthracene	63.40	260.00	1.35
009M001501	UG/KG	100.00	J	Fluoranthene	600.00	5100.00	0.02
009M001501	UG/KG	70.00	U	Fluorene	19.00	540.00	0.13
009M001501	UG/KG	350.00	U	Naphthalene	160.00	2100.00	0.17
009M001501	UG/KG	350.00	U	Phenanthrene	240.00	1500.00	0.23
009M001501	UG/KG	130.00	J	Pyrene	665.00	2600.00	0.05
				ERM Quotient Sum			12.86
009M001501				Mean ERM Quotient			0.51
009M001501				Mean ERM Quotient without ND			0.40
009M001501				Mean ERM Quotient Category			3
009N001001	MG/KG	8.10	U	Arsenic (As)	8.20	70.00	0.12
009N001001	MG/KG	0.62	UJ	Cadmium (Cd)	1.20	9.60	0.06
009N001001	MG/KG	55.70		Chromium (Cr)	81.00	370.00	0.15
<b>009N001001</b>	<b>MG/KG</b>	<b>51.90</b>	<b>J</b>	<b>Copper (Cu)</b>	<b>34.00</b>	<b>270.00</b>	<b>0.19</b>
009N001001	MG/KG	24.60	UJ	Lead (Pb)	46.70	218.00	0.11
009N001001	MG/KG	0.09	UJ	Mercury (Hg)	0.15	0.71	0.13
009N001001	MG/KG	18.90		Nickel (Ni)	20.90	51.60	0.37
009N001001	MG/KG	1.10	UJ	Silver (Ag)	1.00	3.70	0.30
009N001001	MG/KG	95.40		Zinc (Zn)	150.00	410.00	0.23
<b>009N001001</b>	<b>UG/KG</b>	<b>6.40</b>		<b>4,4'-DDE</b>	<b>2.20</b>	<b>27.00</b>	<b>0.24</b>
009N001001	UG/KG	3.30	U	4,4'-DDT	1.58	46.10	0.07
<b>009N001001</b>	<b>UG/KG</b>	<b>93.30</b>		<b>Total PCBs</b>	<b>22.70</b>	<b>180.00</b>	<b>0.52</b>
009N001001	UG/KG	330.00	U	2-Methylnaphthalene	70.00	670.00	0.49
009N001001	UG/KG	330.00	U	Acenaphthene	16.00	500.00	0.66
009N001001	UG/KG	330.00	U	Acenaphthylene	44.00	640.00	0.52
009N001001	UG/KG	330.00	U	Anthracene	85.30	1100.00	0.30
009N001001	UG/KG	330.00	U	Benzo(a)anthracene	261.00	1600.00	0.21
009N001001	UG/KG	330.00	U	Benzo(a)pyrene	430.00	1600.00	0.21
009N001001	UG/KG	330.00	U	Chrysene	384.00	2800.00	0.12
009N001001	UG/KG	330.00	U	Dibenz(a,h)anthracene	63.40	260.00	1.27
009N001001	UG/KG	61.50	J	Fluoranthene	600.00	5100.00	0.01
009N001001	UG/KG	330.00	U	Fluorene	19.00	540.00	0.61
009N001001	UG/KG	330.00	U	Naphthalene	160.00	2100.00	0.16
009N001001	UG/KG	330.00	U	Phenanthrene	240.00	1500.00	0.22
009N001001	UG/KG	64.90	J	Pyrene	665.00	2600.00	0.02
				ERM Quotient Sum			7.28
009N001001				Mean ERM Quotient			0.29
009N001001				Mean ERM Quotient without ND			0.07
009N001001				Mean ERM Quotient Category			2

**Shipyard Creek**  
**Sediment Mean ERM Quotients**

SAMPLE ID	UNITS	RESULT	VQUAL	PARAMETER	ERL	ERM	ERM QUOTIENT
009N001501	MG/KG	15.60		Arsenic (As)	8.20	70.00	0.22
009N001501	MG/KG	0.87	J	Cadmium (Cd)	1.20	9.60	0.09
009N001501	MG/KG	71.50		Chromium (Cr)	81.00	370.00	0.19
009N001501	MG/KG	22.80	UJ	Copper (Cu)	34.00	270.00	0.08
009N001501	MG/KG	54.90		Lead (Pb)	46.70	218.00	0.25
009N001501	MG/KG	0.11	UJ	Mercury (Hg)	0.15	0.71	0.15
009N001501	MG/KG	24.50		Nickel (Ni)	20.90	51.60	0.47
009N001501	MG/KG	0.37	UJ	Silver (Ag)	1.00	3.70	0.10
009N001501	MG/KG	125.00		Zinc (Zn)	150.00	410.00	0.30
009N001501	UG/KG	3.70	J	4,4'-DDE	2.20	27.00	0.14
009N001501	UG/KG	3.30	U	4,4'-DDT	1.58	46.10	0.07
<b>009N001501</b>	<b>UG/KG</b>	<b>352.00</b>		<b>Total PCBs</b>	<b>22.70</b>	<b>180.00</b>	<b>1.96</b>
009N001501	UG/KG	330.00	U	2-Methylnaphthalene	70.00	670.00	0.49
009N001501	UG/KG	330.00	U	Acenaphthene	16.00	500.00	0.66
009N001501	UG/KG	330.00	U	Acenaphthylene	44.00	640.00	0.52
009N001501	UG/KG	330.00	U	Anthracene	85.30	1100.00	0.30
009N001501	UG/KG	75.00	J	Benzo(a)anthracene	261.00	1600.00	0.05
009N001501	UG/KG	330.00	U	Benzo(a)pyrene	430.00	1600.00	0.21
009N001501	UG/KG	90.00	J	Chrysene	384.00	2800.00	0.03
009N001501	UG/KG	330.00	U	Dibenz(a,h)anthracene	63.40	260.00	1.27
009N001501	UG/KG	148.00	J	Fluoranthene	600.00	5100.00	0.03
009N001501	UG/KG	330.00	U	Fluorene	19.00	540.00	0.61
009N001501	UG/KG	330.00	U	Naphthalene	160.00	2100.00	0.16
009N001501	UG/KG	330.00	U	Phenanthrene	240.00	1500.00	0.22
009N001501	UG/KG	162.00	J	Pyrene	665.00	2600.00	0.06
				ERM Quotient Sum			8.64
009N001501				Mean ERM Quotient			0.35
009N001501				Mean ERM Quotient without ND			0.15
009N001501				Mean ERM Quotient Category			2
196M000101	MG/KG	6.10		Arsenic (As)	8.20	70.00	0.09
196M000101	MG/KG	0.19	J	Cadmium (Cd)	1.20	9.60	0.02
196M000101	MG/KG	45.50	J	Chromium (Cr)	81.00	370.00	0.12
196M000101	MG/KG	16.30		Copper (Cu)	34.00	270.00	0.06
196M000101	MG/KG	18.40		Lead (Pb)	46.70	218.00	0.08
196M000101	MG/KG	0.04		Mercury (Hg)	0.15	0.71	0.06
196M000101	MG/KG	8.30		Nickel (Ni)	20.90	51.60	0.16
196M000101	MG/KG	0.12	U	Silver (Ag)	1.00	3.70	0.03
196M000101	MG/KG	63.00	J	Zinc (Zn)	150.00	410.00	0.15
196M000101	UG/KG	64.00	U	4,4'-DDE	2.20	27.00	2.37
196M000101	UG/KG	64.00	U	4,4'-DDT	1.58	46.10	1.39
196M000101	UG/KG	294.00	U	Total PCBs	22.70	180.00	1.63
196M000101	UG/KG	52.00	J	2-Methylnaphthalene	70.00	670.00	0.08
196M000101	UG/KG	850.00	U	Acenaphthene	16.00	500.00	1.70
<b>196M000101</b>	<b>UG/KG</b>	<b>94.00</b>	<b>J</b>	<b>Acenaphthylene</b>	<b>44.00</b>	<b>640.00</b>	<b>0.15</b>
196M000101	UG/KG	850.00	U	Anthracene	85.30	1100.00	0.77
196M000101	UG/KG	860.00		Benzo(a)anthracene	261.00	1600.00	0.54
<b>196M000101</b>	<b>UG/KG</b>	<b>1600.00</b>		<b>Benzo(a)pyrene</b>	<b>430.00</b>	<b>1600.00</b>	<b>1.00</b>
196M000101	UG/KG	970.00		Chrysene	384.00	2800.00	0.35
196M000101	UG/KG	850.00	U	Dibenz(a,h)anthracene	63.40	260.00	3.27
196M000101	UG/KG	2400.00		Fluoranthene	600.00	5100.00	0.47
196M000101	UG/KG	850.00	U	Fluorene	19.00	540.00	1.57
196M000101	UG/KG	200.00	J	Naphthalene	160.00	2100.00	0.10
196M000101	UG/KG	850.00	U	Phenanthrene	240.00	1500.00	0.57
<b>196M000101</b>	<b>UG/KG</b>	<b>6300.00</b>		<b>Pyrene</b>	<b>665.00</b>	<b>2600.00</b>	<b>2.42</b>
				ERM Quotient Sum			19.15
196M000101				Mean ERM Quotient			0.77
196M000101				Mean ERM Quotient without ND			0.23
196M000101				Mean ERM Quotient Category			3

**Shipyard Creek**  
**Sediment Mean ERM Quotients**

SAMPLE ID	UNITS	RESULT	VQUAL	PARAMETER	ERL	ERM	ERM QUOTIENT
196M000102	MG/KG	6.50		Arsenic (As)	8.20	70.00	0.09
196M000102	MG/KG	0.14	J	Cadmium (Cd)	1.20	9.60	0.01
196M000102	MG/KG	18.30	J	Chromium (Cr)	81.00	370.00	0.05
196M000102	MG/KG	11.90		Copper (Cu)	34.00	270.00	0.04
196M000102	MG/KG	20.30		Lead (Pb)	46.70	218.00	0.09
196M000102	MG/KG	0.12		Mercury (Hg)	0.15	0.71	0.17
196M000102	MG/KG	7.50		Nickel (Ni)	20.90	51.60	0.15
196M000102	MG/KG	0.12	U	Silver (Ag)	1.00	3.70	0.03
196M000102	MG/KG	40.40	J	Zinc (Zn)	150.00	410.00	0.10
196M000102	UG/KG	62.00	U	4,4'-DDE	2.20	27.00	2.30
196M000102	UG/KG	62.00	U	4,4'-DDT	1.58	46.10	1.34
196M000102	UG/KG	287.00	U	Total PCBs	22.70	180.00	1.59
196M000102	UG/KG	820.00	U	2-Methylnaphthalene	70.00	670.00	1.22
196M000102	UG/KG	820.00	U	Acenaphthene	16.00	500.00	1.64
196M000102	UG/KG	48.00	J	Acenaphthylene	44.00	640.00	0.08
196M000102	UG/KG	87.00	J	Anthracene	85.30	1100.00	0.08
196M000102	UG/KG	360.00	J	Benz(a)anthracene	261.00	1600.00	0.23
196M000102	UG/KG	290.00	J	Benzo(a)pyrene	430.00	1600.00	0.18
196M000102	UG/KG	180.00	J	Chrysene	384.00	2800.00	0.06
196M000102	UG/KG	820.00	U	Dibenz(a,h)anthracene	63.40	260.00	3.15
196M000102	UG/KG	2000.00		Fluoranthene	600.00	5100.00	0.39
196M000102	UG/KG	820.00	U	Fluorene	19.00	540.00	1.52
196M000102	UG/KG	150.00	J	Naphthalene	160.00	2100.00	0.07
196M000102	UG/KG	81.00	J	Phenanthrene	240.00	1500.00	0.05
<b>196M000102</b>	<b>UG/KG</b>	<b>2700.00</b>		<b>Pyrene</b>	<b>665.00</b>	<b>2600.00</b>	<b>1.04</b>
				ERM Quotient Sum			15.69
196M000102				Mean ERM Quotient			0.63
196M000102				Mean ERM Quotient without ND			0.12
196M000102				Mean ERM Quotient Category			2
196M000103	MG/KG	5.60		Arsenic (As)	8.20	70.00	0.08
196M000103	MG/KG	0.10	J	Cadmium (Cd)	1.20	9.60	0.01
196M000103	MG/KG	11.80	J	Chromium (Cr)	81.00	370.00	0.03
196M000103	MG/KG	10.90		Copper (Cu)	34.00	270.00	0.04
196M000103	MG/KG	17.30		Lead (Pb)	46.70	218.00	0.08
196M000103	MG/KG	0.06		Mercury (Hg)	0.15	0.71	0.08
196M000103	MG/KG	4.80		Nickel (Ni)	20.90	51.60	0.09
196M000103	MG/KG	0.12	U	Silver (Ag)	1.00	3.70	0.03
196M000103	MG/KG	44.50	J	Zinc (Zn)	150.00	410.00	0.11
196M000103	UG/KG	57.00	U	4,4'-DDE	2.20	27.00	2.11
196M000103	UG/KG	57.00	U	4,4'-DDT	1.58	46.10	1.24
196M000103	UG/KG	301.00	U	Total PCBs	22.70	180.00	1.67
196M000103	UG/KG	40.00	J	2-Methylnaphthalene	70.00	670.00	0.06
196M000103	UG/KG	780.00	U	Acenaphthene	16.00	500.00	1.56
196M000103	UG/KG	46.00	J	Acenaphthylene	44.00	640.00	0.07
196M000103	UG/KG	64.00	J	Anthracene	85.30	1100.00	0.06
196M000103	UG/KG	220.00	J	Benz(a)anthracene	261.00	1600.00	0.14
196M000103	UG/KG	220.00	J	Benzo(a)pyrene	430.00	1600.00	0.14
196M000103	UG/KG	190.00	J	Chrysene	384.00	2800.00	0.07
196M000103	UG/KG	80.00	J	Dibenz(a,h)anthracene	63.40	260.00	0.31
196M000103	UG/KG	230.00	J	Fluoranthene	600.00	5100.00	0.05
196M000103	UG/KG	780.00	U	Fluorene	19.00	540.00	1.44
196M000103	UG/KG	140.00	J	Naphthalene	160.00	2100.00	0.07
196M000103	UG/KG	79.00	J	Phenanthrene	240.00	1500.00	0.05
196M000103	UG/KG	1100.00	J	Pyrene	665.00	2600.00	0.42
				ERM Quotient Sum			10.01
196M000103				Mean ERM Quotient			0.40
196M000103				Mean ERM Quotient without ND			0.08
196M000103				Mean ERM Quotient Category			2

**Shipyard Creek**  
**Sediment Mean ERM Quotients**

SAMPLE ID	UNITS	RESULT	VQUAL	PARAMETER	ERL	ERM	ERM QUOTIENT
196M000201	MG/KG	6.70		Arsenic (As)	8.20	70.00	0.10
196M000201	MG/KG	0.05	J	Cadmium (Cd)	1.20	9.60	0.01
196M000201	MG/KG	38.40	J	Chromium (Cr)	81.00	370.00	0.10
196M000201	MG/KG	30.60		Copper (Cu)	34.00	270.00	0.11
196M000201	MG/KG	28.00		Lead (Pb)	46.70	218.00	0.13
196M000201	MG/KG	0.10		Mercury (Hg)	0.15	0.71	0.14
196M000201	MG/KG	9.50		Nickel (Ni)	20.90	51.60	0.18
196M000201	MG/KG	0.12	U	Silver (Ag)	1.00	3.70	0.03
196M000201	MG/KG	69.90	J	Zinc (Zn)	150.00	410.00	0.17
196M000201	UG/KG	60.00	U	4,4'-DDE	2.20	27.00	2.22
196M000201	UG/KG	60.00	U	4,4'-DDT	1.58	46.10	1.30
<b>196M000201</b>	<b>UG/KG</b>	<b>398.50</b>		<b>Total PCBs</b>	<b>22.70</b>	<b>180.00</b>	<b>2.21</b>
196M000201	UG/KG	52.00	J	2-Methylnaphthalene	70.00	670.00	0.08
196M000201	UG/KG	720.00	U	Acenaphthene	16.00	500.00	1.44
196M000201	UG/KG	62.00	J	Acenaphthylene	44.00	640.00	0.10
196M000201	UG/KG	110.00	J	Anthracene	85.30	1100.00	0.10
196M000201	UG/KG	250.00	J	Benzo(a)anthracene	261.00	1600.00	0.16
196M000201	UG/KG	590.00	J	Benzo(a)pyrene	430.00	1600.00	0.37
196M000201	UG/KG	220.00	J	Chrysene	384.00	2800.00	0.08
196M000201	UG/KG	720.00	U	Dibenz(a,h)anthracene	63.40	260.00	2.77
196M000201	UG/KG	450.00	J	Fluoranthene	600.00	5100.00	0.09
196M000201	UG/KG	720.00	U	Fluorene	19.00	540.00	1.33
196M000201	UG/KG	97.00	J	Naphthalene	160.00	2100.00	0.05
196M000201	UG/KG	70.00	J	Phenanthrene	240.00	1500.00	0.05
196M000201	UG/KG	1600.00		Pyrene	665.00	2600.00	0.62
				ERM Quotient Sum			13.93
196M000201				Mean ERM Quotient			0.56
196M000201				Mean ERM Quotient without ND			0.19
196M000201				Mean ERM Quotient Category			2

196M000202	MG/KG	14.90	J	Arsenic (As)	8.20	70.00	0.21
196M000202	MG/KG	0.07	J	Cadmium (Cd)	1.20	9.60	0.01
196M000202	MG/KG	12.90	J	Chromium (Cr)	81.00	370.00	0.03
196M000202	MG/KG	13.20		Copper (Cu)	34.00	270.00	0.05
<b>196M000202</b>	<b>MG/KG</b>	<b>150.00</b>		<b>Lead (Pb)</b>	<b>46.70</b>	<b>218.00</b>	<b>0.69</b>
196M000202	MG/KG	0.04		Mercury (Hg)	0.15	0.71	0.06
196M000202	MG/KG	6.10		Nickel (Ni)	20.90	51.60	0.12
196M000202	MG/KG	0.12	U	Silver (Ag)	1.00	3.70	0.03
196M000202	MG/KG	74.10	J	Zinc (Zn)	150.00	410.00	0.18
196M000202	UG/KG	72.00	U	4,4'-DDE	2.20	27.00	2.67
196M000202	UG/KG	72.00	U	4,4'-DDT	1.58	46.10	1.56
196M000202	UG/KG	336.00	U	Total PCBs	22.70	180.00	1.87
196M000202	UG/KG	920.00	U	2-Methylnaphthalene	70.00	670.00	1.37
196M000202	UG/KG	920.00	U	Acenaphthene	16.00	500.00	1.84
196M000202	UG/KG	920.00	U	Acenaphthylene	44.00	640.00	1.44
196M000202	UG/KG	46.00	J	Anthracene	85.30	1100.00	0.04
196M000202	UG/KG	97.00	J	Benzo(a)anthracene	261.00	1600.00	0.06
196M000202	UG/KG	120.00	J	Benzo(a)pyrene	430.00	1600.00	0.08
196M000202	UG/KG	91.00	J	Chrysene	384.00	2800.00	0.03
196M000202	UG/KG	920.00	U	Dibenz(a,h)anthracene	63.40	260.00	3.54
196M000202	UG/KG	210.00	J	Fluoranthene	600.00	5100.00	0.04
196M000202	UG/KG	920.00	U	Fluorene	19.00	540.00	1.70
<b>196M000202</b>	<b>UG/KG</b>	<b>160.00</b>	<b>J</b>	<b>Naphthalene</b>	<b>160.00</b>	<b>2100.00</b>	<b>0.08</b>
196M000202	UG/KG	85.00	J	Phenanthrene	240.00	1500.00	0.06
196M000202	UG/KG	380.00	J	Pyrene	665.00	2600.00	0.15
				ERM Quotient Sum			17.90
196M000202				Mean ERM Quotient			0.72
196M000202				Mean ERM Quotient without ND			0.08
196M000202				Mean ERM Quotient Category			2

**Shipyard Creek**  
**Sediment Mean ERM Quotients**

SAMPLE ID	UNITS	RESULT	VQUAL	PARAMETER	ERL	ERM	ERM QUOTIENT
196M000203	MG/KG	8.70		Arsenic (As)	8.20	70.00	0.12
196M000203	MG/KG	0.03	U	Cadmium (Cd)	1.20	9.60	0.00
196M000203	MG/KG	10.70	J	Chromium (Cr)	81.00	370.00	0.03
196M000203	MG/KG	12.30		Copper (Cu)	34.00	270.00	0.05
196M000203	MG/KG	27.20		Lead (Pb)	46.70	218.00	0.12
196M000203	MG/KG	0.04		Mercury (Hg)	0.15	0.71	0.06
196M000203	MG/KG	3.80	J	Nickel (Ni)	20.90	51.60	0.07
196M000203	MG/KG	0.12	U	Silver (Ag)	1.00	3.70	0.03
196M000203	MG/KG	42.00	J	Zinc (Zn)	150.00	410.00	0.10
196M000203	UG/KG	59.00	U	4,4'-DDE	2.20	27.00	2.19
196M000203	UG/KG	59.00	U	4,4'-DDT	1.58	46.10	1.28
196M000203	UG/KG	262.50	U	Total PCBs	22.70	180.00	1.46
196M000203	UG/KG	770.00	U	2-Methylnaphthalene	70.00	670.00	1.15
196M000203	UG/KG	770.00	U	Acenaphthene	16.00	500.00	1.54
196M000203	UG/KG	46.00	J	Acenaphthylene	44.00	640.00	0.07
196M000203	UG/KG	47.00	J	Anthracene	85.30	1100.00	0.04
196M000203	UG/KG	72.00	J	Benzo(a)anthracene	261.00	1600.00	0.05
196M000203	UG/KG	82.00	J	Benzo(a)pyrene	430.00	1600.00	0.05
196M000203	UG/KG	62.00	J	Chrysene	384.00	2800.00	0.02
196M000203	UG/KG	770.00	U	Dibenz(a,h)anthracene	63.40	260.00	2.96
196M000203	UG/KG	140.00	J	Fluoranthene	600.00	5100.00	0.03
196M000203	UG/KG	770.00	U	Fluorene	19.00	540.00	1.43
196M000203	UG/KG	200.00	J	Naphthalene	160.00	2100.00	0.10
196M000203	UG/KG	130.00	J	Phenanthrene	240.00	1500.00	0.09
196M000203	UG/KG	770.00	U	Pyrene	665.00	2600.00	0.30
				ERM Quotient Sum			13.33
196M000203				Mean ERM Quotient			0.53
196M000203				Mean ERM Quotient without ND			0.04
196M000203				Mean ERM Quotient Category			2
196M000301	MG/KG	3.60		Arsenic (As)	8.20	70.00	0.05
196M000301	MG/KG	0.21	J	Cadmium (Cd)	1.20	9.60	0.02
196M000301	MG/KG	45.40	J	Chromium (Cr)	81.00	370.00	0.12
196M000301	MG/KG	31.30		Copper (Cu)	34.00	270.00	0.12
196M000301	MG/KG	33.60		Lead (Pb)	46.70	218.00	0.15
196M000301	MG/KG	0.19		Mercury (Hg)	0.15	0.71	0.27
196M000301	MG/KG	8.30		Nickel (Ni)	20.90	51.60	0.16
196M000301	MG/KG	0.12	U	Silver (Ag)	1.00	3.70	0.03
196M000301	MG/KG	105.00	J	Zinc (Zn)	150.00	410.00	0.26
196M000301	UG/KG	50.00	U	4,4'-DDE	2.20	27.00	1.85
196M000301	UG/KG	50.00	U	4,4'-DDT	1.58	46.10	1.08
196M000301	UG/KG	380.50		Total PCBs	22.70	180.00	2.11
196M000301	UG/KG	39.00	J	2-Methylnaphthalene	70.00	670.00	0.06
196M000301	UG/KG	660.00	U	Acenaphthene	16.00	500.00	1.32
196M000301	UG/KG	660.00	U	Acenaphthylene	44.00	640.00	1.03
196M000301	UG/KG	41.00	J	Anthracene	85.30	1100.00	0.04
196M000301	UG/KG	130.00	J	Benzo(a)anthracene	261.00	1600.00	0.08
196M000301	UG/KG	130.00	J	Benzo(a)pyrene	430.00	1600.00	0.08
196M000301	UG/KG	170.00	J	Chrysene	384.00	2800.00	0.06
196M000301	UG/KG	44.00	J	Dibenz(a,h)anthracene	63.40	260.00	0.17
196M000301	UG/KG	270.00	J	Fluoranthene	600.00	5100.00	0.05
196M000301	UG/KG	660.00	U	Fluorene	19.00	540.00	1.22
196M000301	UG/KG	56.00	J	Naphthalene	160.00	2100.00	0.03
196M000301	UG/KG	78.00	J	Phenanthrene	240.00	1500.00	0.05
196M000301	UG/KG	320.00	J	Pyrene	665.00	2600.00	0.12
				ERM Quotient Sum			10.55
196M000301				Mean ERM Quotient			0.42
196M000301				Mean ERM Quotient without ND			0.16
196M000301				Mean ERM Quotient Category			2

**Shipyard Creek**  
**Sediment Mean ERM Quotients**

SAMPLE ID	UNITS	RESULT	VQUAL	PARAMETER	ERL	ERM	ERM QUOTIENT
196M000302	MG/KG	5.00		Arsenic (As)	8.20	70.00	0.07
196M000302	MG/KG	0.38	J	Cadmium (Cd)	1.20	9.60	0.04
196M000302	MG/KG	27.80	J	Chromium (Cr)	81.00	370.00	0.08
196M000302	MG/KG	29.10		Copper (Cu)	34.00	270.00	0.11
196M000302	MG/KG	25.60		Lead (Pb)	46.70	218.00	0.12
196M000302	MG/KG	0.19		Mercury (Hg)	0.15	0.71	0.27
196M000302	MG/KG	8.00		Nickel (Ni)	20.90	51.60	0.16
196M000302	MG/KG	0.12	U	Silver (Ag)	1.00	3.70	0.03
196M000302	MG/KG	77.70	J	Zinc (Zn)	150.00	410.00	0.19
<b>196M000302</b>	<b>UG/KG</b>	<b>130.00</b>	<b>J</b>	<b>4,4'-DDE</b>	<b>2.20</b>	<b>27.00</b>	<b>4.81</b>
<b>196M000302</b>	<b>UG/KG</b>	<b>64.00</b>	<b>J</b>	<b>4,4'-DDT</b>	<b>1.58</b>	<b>46.10</b>	<b>1.39</b>
<b>196M000302</b>	<b>UG/KG</b>	<b>477.00</b>		<b>Total PCBs</b>	<b>22.70</b>	<b>180.00</b>	<b>2.65</b>
196M000302	UG/KG	810.00	U	2-Methylnaphthalene	70.00	670.00	1.21
196M000302	UG/KG	810.00	U	Acenaphthene	16.00	500.00	1.62
196M000302	UG/KG	810.00	U	Acenaphthylene	44.00	640.00	1.27
196M000302	UG/KG	810.00	U	Anthracene	85.30	1100.00	0.74
196M000302	UG/KG	100.00	J	Benzo(a)anthracene	261.00	1600.00	0.06
196M000302	UG/KG	110.00	J	Benzo(a)pyrene	430.00	1600.00	0.07
196M000302	UG/KG	78.00	J	Chrysene	384.00	2800.00	0.03
196M000302	UG/KG	810.00	U	Dibenz(a,h)anthracene	63.40	260.00	3.12
196M000302	UG/KG	360.00	J	Fluoranthene	600.00	5100.00	0.07
196M000302	UG/KG	810.00	U	Fluorene	19.00	540.00	1.50
196M000302	UG/KG	83.00	J	Naphthalene	160.00	2100.00	0.04
196M000302	UG/KG	48.00	J	Phenanthrene	240.00	1500.00	0.03
196M000302	UG/KG	370.00	J	Pyrene	665.00	2600.00	0.14
				ERM Quotient Sum			19.80
196M000302				Mean ERM Quotient			0.79
196M000302				Mean ERM Quotient without ND			0.41
196M000302				Mean ERM Quotient Category			2
196M000303	MG/KG	5.40		Arsenic (As)	8.20	70.00	0.08
196M000303	MG/KG	0.23	J	Cadmium (Cd)	1.20	9.60	0.02
196M000303	MG/KG	14.80	J	Chromium (Cr)	81.00	370.00	0.04
196M000303	MG/KG	6.90		Copper (Cu)	34.00	270.00	0.03
196M000303	MG/KG	7.40		Lead (Pb)	46.70	218.00	0.03
196M000303	MG/KG	0.02	J	Mercury (Hg)	0.15	0.71	0.03
196M000303	MG/KG	6.20		Nickel (Ni)	20.90	51.60	0.12
196M000303	MG/KG	0.12	U	Silver (Ag)	1.00	3.70	0.03
196M000303	MG/KG	27.80	J	Zinc (Zn)	150.00	410.00	0.07
196M000303	UG/KG	65.00	U	4,4'-DDE	2.20	27.00	2.41
196M000303	UG/KG	65.00	U	4,4'-DDT	1.58	46.10	1.41
196M000303	UG/KG	283.50	U	Total PCBs	22.70	180.00	1.58
196M000303	UG/KG	890.00	U	2-Methylnaphthalene	70.00	670.00	1.33
196M000303	UG/KG	890.00	U	Acenaphthene	16.00	500.00	1.78
196M000303	UG/KG	890.00	U	Acenaphthylene	44.00	640.00	1.39
196M000303	UG/KG	890.00	U	Anthracene	85.30	1100.00	0.81
196M000303	UG/KG	890.00	U	Benzo(a)anthracene	261.00	1600.00	0.56
196M000303	UG/KG	890.00	U	Benzo(a)pyrene	430.00	1600.00	0.56
196M000303	UG/KG	890.00	U	Chrysene	384.00	2800.00	0.32
196M000303	UG/KG	890.00	U	Dibenz(a,h)anthracene	63.40	260.00	3.42
196M000303	UG/KG	50.00	J	Fluoranthene	600.00	5100.00	0.01
196M000303	UG/KG	890.00	U	Fluorene	19.00	540.00	1.65
196M000303	UG/KG	59.00	J	Naphthalene	160.00	2100.00	0.03
196M000303	UG/KG	890.00	U	Phenanthrene	240.00	1500.00	0.59
196M000303	UG/KG	890.00	U	Pyrene	665.00	2600.00	0.34
				ERM Quotient Sum			18.62
196M000303				Mean ERM Quotient			0.74
196M000303				Mean ERM Quotient without ND			0.02
196M000303				Mean ERM Quotient Category			1

**Notes:**

ERL = Effects Range-Low  
 ERM = Effects Range-Median  
 J = Estimated Number  
 ND = Not Detected  
 U = Sample Quantitation Limit  
 VQUAL = Validation Qualifier

**Table 3-2**  
**Shipyard Creek SLERA**  
**Sediment COPC Screening Table**

Parameter	Frequency of Detection	Max Detect	Location of Maximum Conc.	Screening Value (SV)	Max. HQ	# of Samples Exceeding SBV	Range of Non-detects		Retained for Refinement?	Parameter
							Min	Max		
<b>Inorganics (mg/kg)</b>										
Aluminum	48/48	34,300.0	SYCM016A01	NSV	-	-	-	-	Yes	C Aluminum
Antimony	9/48	6.9	009M001301	12	0.58	0	0.26 UJ	7.8 U	No	B Antimony
Arsenic	48/48	22.7	SYCM001701	7.24	3.14	36	-	-	Yes	A Arsenic
Barium	48/48	122.0	009M001401	NSV	-	-	-	-	Yes	C Barium
Beryllium	48/48	1.5	SYCM001701	NSV	-	-	-	-	Yes	C Beryllium
Cadmium	40/48	1.7	009M000801	1	1.70	4	0.7 U	0.03 U	Yes	A Cadmium
Calcium	48/48	220,000.0	009M000801	NSV	-	-	-	-	Yes	C Calcium
Chromium	48/48	291.0	009M000401	52.3	5.56	21	-	-	Yes	A Chromium
Cobalt	48/48	7.6	SYCM016A01	NSV	-	-	-	-	Yes	C Cobalt
Copper	48/48	228.0	009M000201	18.7	12.19	26	-	-	Yes	A Copper
Iron	48/48	66,300.0	009M001401	NSV	-	-	-	-	Yes	C Iron
Lead	44/48	150.0	196M000202	30.2	4.97	11	1.9 U	10.1 U	Yes	A Lead
Magnesium	48/48	12,300.0	SYCM000701	NSV	-	-	-	-	Yes	C Magnesium
Manganese	48/48	838.0	SYCM002001	NSV	-	-	-	-	Yes	C Manganese
Mercury	24/48	0.7	009M000401	0.13	5.31	17	0.02 U	0.17 U	Yes	A Mercury
Nickel	48/48	37.3	009M000401	15.9	2.35	23	-	-	Yes	A Nickel
Potassium	48/48	4,390.0	SYCM001401	NSV	-	-	-	-	Yes	C Potassium
Selenium	27/48	2.9	SYCM002001	NSV	-	-	-	-	Yes	C Selenium
Silver	7/48	1.4	SYCM002001	2	0.70	0	-	-	No	B Silver
Sodium	48/48	31,400.0	SYCM002001	NSV	-	-	-	-	Yes	C Sodium
Thallium	6/48	3.3	SYCM001201	NSV	-	-	-	-	Yes	C Thallium
Tin	10/33	129.0	196M000201	NSV	-	-	-	-	Yes	C Tin
Monobutyltin	0/39	-	-	NSV	-	-	1.0 U	50.0 U	Yes	C Monobutyltin
Dibutyltin	0/39	-	-	NSV	-	-	1.0 U	50 U	Yes	C Dibutyltin
Tributyltin	0/39	-	-	NSV	-	-	1.0 U	50 U	Yes	C Tributyltin
Tetrabutyltin	0/24	-	-	NSV	-	-	1.0 U	50 U	Yes	C Tetrabutyltin
Vanadium	48/48	83.9	SYCM001401	NSV	-	-	-	-	Yes	C Vanadium
Zinc	48/48	387.0	009M000401	124	3.12	-	-	-	Yes	A Zinc
<b>SVOCs (µg/kg)</b>										
<b>SVOCs (µg/kg)</b>										
1,2,4-Trichlorobenzene	0/48	-	-	NSV	-	-	190 U	18000 U	Yes	C 1,2,4-Trichlorobenzene
1,2-Dichlorobenzene	3/48	400.0	-	NSV	-	-			Yes	C 1,2-Dichlorobenzene
1,3-Dichlorobenzene	3/48	830.0	-	NSV	-	-			Yes	C 1,3-Dichlorobenzene
1,4-Dichlorobenzene	5/48	3,900.0	-	NSV	-	-	190 U	18000 U	Yes	C 1,4-Dichlorobenzene
2,2'-oxybis(1-Chloropropane)	0/48	-	-	NSV	-	-	190 U	18000 U	Yes	C 2,2'-oxybis(1-Chloropropane)
2,4,5-Trichlorophenol	0/48	-	-	NSV	-	-	960 U	91000 U	Yes	C 2,4,5-Trichlorophenol
2,4,6-Trichlorophenol	0/48	-	-	NSV	-	-	190 U	18000 U	Yes	C 2,4,6-Trichlorophenol
2,4-Dichlorophenol	0/48	-	-	NSV	-	-	190 U	18000 U	Yes	C 2,4-Dichlorophenol
2,4-Dimethylphenol	0/48	-	-	NSV	-	-	190 U	18000 U	Yes	C 2,4-Dimethylphenol
2,4-Dinitrophenol	0/48	-	-	NSV	-	-	190 U	18000 U	Yes	C 2,4-Dinitrophenol
2,4-Dinitrotoluene	0/48	-	-	NSV	-	-	960 U	91000 U	Yes	C 2,4-Dinitrotoluene

**Table 3-2**  
**Shipyard Creek SLERA**  
**Sediment COPC Screening Table**

Parameter	Frequency of Detection	Max Detect	Location of Maximum Conc.	Screening Value (SV)	Max. HQ	# of Samples Exceeding SBV	Range of Non-detects		Retained for Refinement?	Parameter
							Min	Max		
2,6-Dinitrotoluene	0/48	-	-	NSV	-	-	190 U	18000 U	Yes	C 2,6-Dinitrotoluene
2-Chloronaphthalene	0/48	-	-	NSV	-	-	190 U	18000 U	Yes	C 2-Chloronaphthalene
2-Chlorophenol	0/48	-	-	NSV	-	-	190 U	18000 U	Yes	C 2-Chlorophenol
2-Methyl-4,6-Dinitrophenol	0/48	-	-	NSV	-	-	960 U	91000 U	Yes	C 2-Methyl-4,6-Dinitrophenol
2-Methylnaphthalene	4/48	52.0	196M000101	20.23	2.57	-	70 U	3600 U	Yes	A 2-Methylnaphthalene
2-Methylphenol (o-Cresol)	0/48	-	-	NSV	-	-	190 U	18000 U	Yes	C 2-Methylphenol (o-Cresol)
2-Nitroaniline	0/48	-	-	NSV	-	-	960 U	91000 U	Yes	C 2-Nitroaniline
2-Nitrophenol	0/48	-	-	NSV	-	-	190 U	18000 U	Yes	C 2-Nitrophenol
3,3'-Dichlorobenzidine	0/48	-	-	NSV	-	-	3800 U	36000 U	Yes	C 3,3'-Dichlorobenzidine
3-Nitroaniline	0/48	-	-	NSV	-	-	960 U	91000 U	Yes	C 3-Nitroaniline
4-Bromophenyl-phenylether	0/48	-	-	NSV	-	-	190 U	18000 U	Yes	C 4-Bromophenyl-phenylether
4-Chloro-3-methylphenol	0/48	-	-	NSV	-	-	190 U	18000 U	Yes	C 4-Chloro-3-methylphenol
4-Chloroaniline	0/48	-	-	NSV	-	-	190 U	18000 U	Yes	C 4-Chloroaniline
4-Chlorophenylphenylether	0/48	-	-	NSV	-	-	190 U	18000 U	Yes	C 4-Chlorophenylphenylether
4-Methylphenol (p-Cresol)	1/48	49.0	196M000102	NSV	-	-	190 U	18000 U	Yes	C 4-Methylphenol (p-Cresol)
4-Nitroaniline	0/48	-	-	NSV	-	-	960 U	91000 U	Yes	C 4-Nitroaniline
4-Nitrophenol	0/48	-	-	NSV	-	-	960 U	91000 U	Yes	C 4-Nitrophenol
Acenaphthene	1/48	230.0	009M001401	6.71	34.28	-	70 U	3600 U	Yes	A Acenaphthene
Acenaphthylene	5/48	94.0	196M000101	5.87	16.01	-	70 U	3600 U	Yes	A Acenaphthylene
Aniline	0/39		-	NSV	-	-	190 U	18000 U	Yes	C Aniline
Anthracene	6/48	110.0	196M000201	46.9	2.35	-	70 U	3600 U	Yes	A Anthracene
Benzidine	0/15		-	NSV	-	-	960 U	91000 U	Yes	C Benzidine
Benzo(a)anthracene	15/48	860.0	196M000101	74.8	11.5	-	190 U	18000 U	Yes	A Benzo(a)anthracene
Benzo(a)pyrene	11/48	1,600.0	196M000101	88.8	18.0	-	190 U	18000 U	Yes	A Benzo(a)pyrene
Benzo(b)fluoranthene	13/48	270.0	196M000102	NSV	-	-	190 UJ	18000 U	Yes	C Benzo(b)fluoranthene
Benzo(g,h,i)perylene	9/48	780.0	196M000101	NSV	-	-	190 U	18000 U	Yes	C Benzo(g,h,i)perylene
Benzo(k)fluoranthene	9/48	870.0	196M000101	NSV	-	-	190 UJ	18000 UJ	Yes	C Benzo(k)fluoranthene
Benzoic acid	8/48	64.0	196M000101	NSV	-	-	810 U	91000 U	Yes	C Benzoic acid
Benzyl alcohol	0/48	-	-	NSV	-	-	190 UJ	18000 U	Yes	C Benzyl alcohol
bis(2-Chloroethoxy)methane	0/48	-	-	NSV	-	-	190 U	18000 U	Yes	C bis(2-Chloroethoxy)methane
bis(2-Chloroethyl)ether	0/48	-	-	NSV	-	-	190 UJ	18000 U	Yes	C bis(2-Chloroethyl)ether
bis(2-Ethylhexyl)phthalate (BEHP)	6/48	1,600.0	SYCM000301	182	8.8	-	190 U	18000 U	Yes	A bis(2-Ethylhexyl)phthalate (BEHP)
Butylbenzylphthalate	1/48	47.0	196M000103	NSV	-	-	190 U	18000 U	Yes	C Butylbenzylphthalate
Carbazole	0/24	-	-	NSV	-	-	400 U	1600 U	Yes	C Carbazole
Chrysene	15/48	970.0	196M000101	108	9.0	-	190 U	18000 U	Yes	A Chrysene
Dibenz(a,h)anthracene	2/48	80.0	196M000103	6.22	12.9	-	190 U	18000 U	Yes	A Dibenz(a,h)anthracene
Dibenzofuran	1/48	140.0	009M001401	NSV	-	-	190 U	18000 U	Yes	C Dibenzofuran
Diethylphthalate	2/48	1,400.0	SYCM001401	NSV	-	-	190 U	18000 U	Yes	C Diethylphthalate
Dimethyl phthalate	0/48	-	-	NSV	-	-	190 U	18000 U	Yes	C Dimethyl phthalate
Di-n-butylphthalate	10/48	200.0	SYCM000801	NSV	-	-	190 U	18000 U	Yes	C Di-n-butylphthalate
Di-n-octyl phthalate	1/48	110.0	SYCM002101	NSV	-	-	190 U	18000 U	Yes	C Di-n-octyl phthalate

**Table 3-2**  
**Shipyard Creek SLERA**  
**Sediment COPC Screening Table**

Parameter	Frequency of Detection	Max Detect	Location of Maximum Conc.	Screening Value (SV)	Max. HQ	# of Samples Exceeding SBV	Range of Non-detects		Retained for Refinement?	Parameter
							Min	Max		
Fluoranthene	22/48	9,500.0	009M000401	113	84.1	-	190 UR	1500 U	Yes	A Fluoranthene
Fluorene	1/48	160.0	009M001401	21.2	7.5	-	70 U	3600 U	Yes	A Fluorene
Hexachlorobenzene	0/48	-	-	NSV	-	-	190 U	18000 U	Yes	C Hexachlorobenzene
Hexachlorobutadiene	0/48	-	-	NSV	-	-	190 U	18000 U	Yes	C Hexachlorobutadiene
Hexachlorocyclopentadiene	0/48	-	-	NSV	-	-	190 U	18000 U	Yes	C Hexachlorocyclopentadiene
Hexachloroethane	0/48	-	-	NSV	-	-	190 U	18000 U	Yes	C Hexachloroethane
Indeno(1,2,3-cd)pyrene	8/48	320.0	196M000101	NSV	-	-	190 U	18000 U	Yes	C Indeno(1,2,3-cd)pyrene
Isophorone	0/48	-	-	NSV	-	-	190 U	18000 U	Yes	C Isophorone
Naphthalene	9/48	200.0	196M000101	34.6	5.8	-	190 U	18000 U	Yes	A Naphthalene
Nitrobenzene	0/48	-	-	NSV	-	-	190 U	18000 U	Yes	C Nitrobenzene
N-Nitrosodimethylamine	0/48	-	-	NSV	-	-	190 UJ	18000 U	Yes	C N-Nitrosodimethylamine
N-Nitroso-di-n-propylamine	0/48	-	-	NSV	-	-	190 UJ	18000 U	Yes	C N-Nitroso-di-n-propylamine
N-Nitrosodiphenylamine	0/48	-	-	NSV	-	-	190 UJ	18000 U	Yes	C N-Nitrosodiphenylamine
Pentachlorophenol	0/48	-	-	NSV	-	-	190 U	18000 U	Yes	C Pentachlorophenol
Phenanthere	12/48	170.0	SYCM002001	86.7	2.0	-	190 U	18000 U	Yes	A Phenanthere
Phenol	0/48	-	-	NSV	-	-	190 UJ	18000 U	Yes	C Phenol
Pyrene	18/48	6,400.0	009M000401	153	41.83	-	180 UR	1600 U	Yes	A Pyrene
Total PAHs	22/48	78,900.0	009M000401	1684	46.85	-	-	-	Yes	A Total PAHs
<b>Pesticides/PCBs (µg/kg)</b>										
4,4'-DDD	6/48	91.0	009M000501	3.3	27.58	-	4 U	72 U	Yes	A 4,4'-DDD
4,4'-DDE	12/48	150.0	009M000501	3.3	45.45	-	2 U	72 U	Yes	A 4,4'-DDE
4,4'-DDT	8/48	140.0	009M000501	3.3	42.42	-	4 U	72 U	Yes	A 4,4'-DDT
Aldrin	2/48	18.0	009M000401	NSV	-	-	2 UJ	38 U	Yes	C Aldrin
alpha-BHC	0/48	-	-	NSV	-	-	2 U	38 U	Yes	C alpha-BHC
alpha-Chlordane	3/48	29.0	009M001501	1.7	17.06	3	2 U	38 U	Yes	C alpha-Chlordane
beta-BHC	1/48	7.0	009M000201	NSV	-	-	2 U	38 U	Yes	C beta-BHC
Chlordane	0/24	-	-	1.7	-	-	40.1 U	160 U	Yes	C Chlordane
delta-BHC	0/48	-	-	NSV	-	-	2 U	38 U	Yes	C delta-BHC
Dieldrin	0/48	-	-	3.3	-	-	2 U	70 U	Yes	C Dieldrin
Endosulfan I	0/48	-	-	NSV	-	-	2 U	38 U	Yes	C Endosulfan I
Endosulfan II	0/48	-	-	NSV	-	-	4 U	72 U	Yes	C Endosulfan II
Endosulfan sulfate	0/48	-	-	NSV	-	-	4 U	72 U	Yes	C Endosulfan sulfate
Endrin	0/48	-	-	3.3	-	-	2 U	72 U	Yes	D Endrin
Endrin aldehyde	0/48	-	-	3.3	-	-	2 U	72 U	Yes	D Endrin aldehyde
Endrin ketone	0/48	-	-	3.3	-	-	4 U	72 U	Yes	D Endrin ketone
gamma-BHC (Lindane)	0/48	-	-	3.3	-	-	2 UJ	38 U	Yes	D gamma-BHC (Lindane)
gamma-Chlordane	3/48	26.0	009M001501	1.7	15.3	2	2 U	38 U	Yes	A gamma-Chlordane
Heptachlor	0/48	-	-	NSV	-	-	2 U	38 U	Yes	C Heptachlor
Heptachlor epoxide	0/48	-	-	NSV	-	-	2 U	38 U	Yes	C Heptachlor epoxide
Methoxychlor	0/48	-	-	NSV	-	-	20 U	380 U	Yes	C Methoxychlor

**Table 3-2**  
**Shipyard Creek SLERA**  
**Sediment COPC Screening Table**

Parameter	Frequency of Detection	Max Detect	Location of Maximum Conc.	Screening Value (SV)	Max. HQ	# of Samples Exceeding SBV	Range of Non-detects		Retained for Refinement?	Parameter
							Min	Max		
Toxaphene	0/48	-	-	NSV	-	-	80 U	2400 U	Yes	C Toxaphene
Aroclor-1016	0/48	-	-	33	-	-	20 U	200 U	Yes	D Aroclor-1016
Aroclor-1221	0/48	-	-	67	-	-	20 U	325 U	Yes	D Aroclor-1221
Aroclor-1232	0/48	-	-	33	-	-	20 U	200 U	Yes	D Aroclor-1232
Aroclor-1242	0/48	-	-	33	-	-	20 U	200 U	Yes	D Aroclor-1242
Aroclor-1248	2/48	3,000.0	009M000401	33	90.91	-	20 U	200 U	Yes	A Aroclor-1248
Aroclor-1254	4/48	690.0	009M000401	33	20.91	-	20 U	160 U	Yes	A Aroclor-1254
Aroclor-1260	10/48	890.0	009M001501	33	26.97	-	20 U	160 U	Yes	A Aroclor-1260
Total PCBs	38/48	4,860.0	009M000401	33	147.27	-	-	-	Yes	A Total PCBs
<b>VOAs (<math>\mu\text{g/kg}</math>)</b>										
1,1,1-Trichloroethane	0/48	-	-	NSV	-	-	6 U	42 U	Yes	C 1,1,1-Trichloroethane
1,1,2,2-Tetrachloroethane	0/48	-	-	NSV	-	-	6 U	42 U	Yes	C 1,1,2,2-Tetrachloroethane
1,1,2-Trichloroethane	0/48	-	-	NSV	-	-	6 U	42 U	Yes	C 1,1,2-Trichloroethane
1,1-Dichloroethane	0/48	-	-	NSV	-	-	6 U	42 U	Yes	C 1,1-Dichloroethane
1,1-Dichloroethene	0/48	-	-	NSV	-	-	6 U	42 U	Yes	C 1,1-Dichloroethene
1,2-Dichloroethane	0/48	-	-	NSV	-	-	6 U	42 U	Yes	C 1,2-Dichloroethane
1,2-Dichloroethene (total)	0/48	-	-	NSV	-	-	6 U	21 U	Yes	C 1,2-Dichloroethene (total)
1,2-Dichloropropane	0/48	-	-	NSV	-	-	6 U	42 U	Yes	C 1,2-Dichloropropane
2-Butanone (MEK)	14/48	96.0	SYCM016A01	NSV	-	-	10 U	110 UJ	Yes	C 2-Butanone (MEK)
2-Hexanone	0/48	-	-	NSV	-	-	6 U	42 U	Yes	C 2-Hexanone
4-Methyl-2-Pentanone (MIBK)	0/48	-	-	NSV	-	-	10 U	110 U	Yes	C 4-Methyl-2-Pentanone (MIBK)
Acetone	12/48	1,500.0	SYCM002101	NSV	-	-	10 U	390 U	Yes	C Acetone
Benzene	0/48	-	-	NSV	-	-	6 U	42 U	Yes	C Benzene
Bromodichloromethane	0/48	-	-	NSV	-	-	6 U	42 U	Yes	C Bromodichloromethane
Bromoform	0/48	-	-	NSV	-	-	6 U	42 U	Yes	C Bromoform
Bromomethane	0/48	-	-	NSV	-	-	6 U	42 U	Yes	C Bromomethane
Carbon disulfide	27/48	150.0	009M000301	NSV	-	-	6 U	42 U	Yes	C Carbon disulfide
Carbon tetrachloride	0/48	-	-	NSV	-	-	6 U	42 U	Yes	C Carbon tetrachloride
Chlorobenzene	4/48	10,000.0	196M000202	NSV	-	-	6 U	42 U	Yes	C Chlorobenzene
Chloroethane	0/48	-	-	NSV	-	-	6 U	42 U	Yes	C Chloroethane
Chloroform	0/48	-	-	NSV	-	-	6 U	42 U	Yes	C Chloroform
Chloromethane	0/48	-	-	NSV	-	-	6 U	42 U	Yes	C Chloromethane
cis-1,3-Dichloropropene	0/48	-	-	NSV	-	-	6 U	42 U	Yes	C cis-1,3-Dichloropropene
Dibromochloromethane	0/48	-	-	NSV	-	-	6 U	42 U	Yes	C Dibromochloromethane
Ethylbenzene	0/48	-	-	NSV	-	-	6 U	42 U	Yes	C Ethylbenzene
Methylene chloride	1/48	72.0	009M001401	NSV	-	-	6 U	69 U	Yes	C Methylene chloride
Styrene	0/48	-	-	NSV	-	-	6 U	42 U	Yes	C Styrene
Tetrachloroethene	0/48	-	-	NSV	-	-	6 U	42 U	Yes	C Tetrachloroethene
Tetrahydrofuran	0/48	-	-	NSV	-	-	29 U	110 U	Yes	C Tetrahydrofuran
Toluene	1/48	4.7	009M000701	NSV	-	-	6 U	42 U	Yes	C Toluene

**Table 3-2**  
**Shipyard Creek SLERA**  
**Sediment COPC Screening Table**

Parameter	Frequency of Detection	Max Detect	Location of Maximum Conc.	Screening Value (SV)	Max. HQ	# of Samples Exceeding SBV	Range of Non-detects		Retained for Refinement?	Parameter
							Min	Max		
trans-1,3-Dichloropropene	0/48	-	-	NSV	-	-	6 U	42 U	Yes	C trans-1,3-Dichloropropene
Trichloroethene	0/48	-	-	NSV	-	-	6 U	42 U	Yes	C Trichloroethene
Trichlorofluoromethane	0/48	-	-	NSV	-	-	6 U	21 U	Yes	C Trichlorofluoromethane
Vinyl acetate	0/48	-	-	NSV	-	-	10 U	83 U	Yes	C Vinyl acetate
Vinyl chloride	0/48	-	-	NSV	-	-	6 U	42 U	Yes	C Vinyl chloride
Xylene (Total)	0/48	-	-	NSV	-	-	6 U	42 U	Yes	C Xylene (Total)

Notes:

NSV

No screening value available.

SV

Screening Value. Sediment screening values for this SLERA were taken from:

USEPA. 2001. Supplemental Guidance to RAGS: Region 4 Bulletins, Ecological Risk Assessment. Originally published in November 1995.

Website version updated November 30, 2001: <http://www.epa.gov/region4/waste/ots/ecobul.htm>

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Indicates that this column is not applicable to this contaminant.

Rational for retaining COPCs

A

Maximum detected concentration is greater than Region 4 SV.

B

Maximum detected concentration is less than Region 4 SV.

C

No EPA screening value available for comparison.

D

Minimum detection limit is greater than the screening value.

SAMPLE ID	PARAMETER	ERM QUOTIENT
SYCN018A01	Mean ERM Quotient	0.42
SYCN018A01	Mean ERM Quotient without ND	0.06
SYCN002101	Mean ERM Quotient	0.43
SYCN002101	Mean ERM Quotient without ND	0.05
SYCN001701	Mean ERM Quotient	0.64
SYCN001701	Mean ERM Quotient without ND	0.05
SYCN001601	Mean ERM Quotient	1.07
SYCN001601	Mean ERM Quotient without ND	0.05
SYCM018A01	Mean ERM Quotient	0.42
SYCM018A01	Mean ERM Quotient without ND	0.04
SYCM016A01	Mean ERM Quotient	1.15
SYCM016A01	Mean ERM Quotient without ND	0.05
SYCM002201	Mean ERM Quotient	0.85
SYCM002201	Mean ERM Quotient without ND	0.04
SYCM002101	Mean ERM Quotient	0.39
SYCM002101	Mean ERM Quotient without ND	0.04
SYCM002001	Mean ERM Quotient	1.11
SYCM002001	Mean ERM Quotient without ND	0.06
SYCM001901	Mean ERM Quotient	1.16
SYCM001901	Mean ERM Quotient without ND	0.05
SYCM001801	Mean ERM Quotient	0.29
SYCM001801	Mean ERM Quotient without ND	0.05
SYCM001701	Mean ERM Quotient	0.63
SYCM001701	Mean ERM Quotient without ND	0.04
SYCM001601	Mean ERM Quotient	1.15
SYCM001601	Mean ERM Quotient without ND	0.05
SYCM001501	Mean ERM Quotient	0.64
SYCM001501	Mean ERM Quotient without ND	0.05
SYCM001401	Mean ERM Quotient	1.09
SYCM001401	Mean ERM Quotient without ND	0.05
SYCM001301	Mean ERM Quotient	0.71
SYCM001301	Mean ERM Quotient without ND	0.07
SYCM001201	Mean ERM Quotient	0.51
SYCM001201	Mean ERM Quotient without ND	0.04
SYCM001101	Mean ERM Quotient	0.42
SYCM001101	Mean ERM Quotient without ND	0.03
SYCM001001	Mean ERM Quotient	0.61
SYCM001001	Mean ERM Quotient without ND	0.06
SYCM000901	Mean ERM Quotient	0.47
SYCM000901	Mean ERM Quotient without ND	0.06
SYCM000801	Mean ERM Quotient	1.22
SYCM000801	Mean ERM Quotient without ND	0.05
SYCM000701	Mean ERM Quotient	0.63
SYCM000701	Mean ERM Quotient without ND	0.06
SYCM000601	Mean ERM Quotient	0.38
SYCM000601	Mean ERM Quotient without ND	0.04
SYCM000501	Mean ERM Quotient	0.50
SYCM000501	Mean ERM Quotient without ND	0.04

SYCM000401	Mean ERM Quotient	0.43
SYCM000401	Mean ERM Quotient without ND	0.05
SYCM000301	Mean ERM Quotient	0.62
SYCM000301	Mean ERM Quotient without ND	0.05
SYCM000201	Mean ERM Quotient	0.58
SYCM000201	Mean ERM Quotient without ND	0.06
SYCM000101	Mean ERM Quotient	0.63
SYCM000101	Mean ERM Quotient without ND	0.07
196M000303	Mean ERM Quotient	0.74
196M000303	Mean ERM Quotient without ND	0.02
196M000302	Mean ERM Quotient	0.79
196M000302	Mean ERM Quotient without ND	0.41
196M000301	Mean ERM Quotient	0.42
196M000301	Mean ERM Quotient without ND	0.16
196M000203	Mean ERM Quotient	0.53
196M000203	Mean ERM Quotient without ND	0.04
196M000202	Mean ERM Quotient	0.72
196M000202	Mean ERM Quotient without ND	0.08
196M000201	Mean ERM Quotient	0.56
196M000201	Mean ERM Quotient without ND	0.19
196M000103	Mean ERM Quotient	0.40
196M000103	Mean ERM Quotient without ND	0.08
196M000102	Mean ERM Quotient	0.63
196M000102	Mean ERM Quotient without ND	0.12
196M000101	Mean ERM Quotient	0.77
196M000101	Mean ERM Quotient without ND	0.23
009N001501	Mean ERM Quotient	0.35
009N001501	Mean ERM Quotient without ND	0.15
009N001001	Mean ERM Quotient	0.29
009N001001	Mean ERM Quotient without ND	0.07
009M001501	Mean ERM Quotient	0.51
009M001501	Mean ERM Quotient without ND	0.40
009M001401	Mean ERM Quotient	0.39
009M001401	Mean ERM Quotient without ND	0.27
009M001301	Mean ERM Quotient	0.34
009M001301	Mean ERM Quotient without ND	0.21
009M001201	Mean ERM Quotient	0.17
009M001201	Mean ERM Quotient without ND	0.02
009M001101	Mean ERM Quotient	0.24
009M001101	Mean ERM Quotient without ND	0.06
009M001001	Mean ERM Quotient	0.33
009M001001	Mean ERM Quotient without ND	0.15
009M000901	Mean ERM Quotient	0.15
009M000901	Mean ERM Quotient without ND	0.02
009M000801	Mean ERM Quotient	0.28
009M000801	Mean ERM Quotient without ND	0.04
009M000701	Mean ERM Quotient	0.21
009M000701	Mean ERM Quotient without ND	0.03
009M000601	Mean ERM Quotient	0.21

009M000601	Mean ERM Quotient without ND	0.04
009M000501	Mean ERM Quotient	0.97
009M000501	Mean ERM Quotient without ND	0.78
009M000401	Mean ERM Quotient	7.53
009M000401	Mean ERM Quotient without ND	1.60
009M000301	Mean ERM Quotient	0.35
009M000301	Mean ERM Quotient without ND	0.12
009M000201	Mean ERM Quotient	0.27
009M000201	Mean ERM Quotient without ND	0.14
009M000101	Mean ERM Quotient	0.29
009M000101	Mean ERM Quotient without ND	0.14